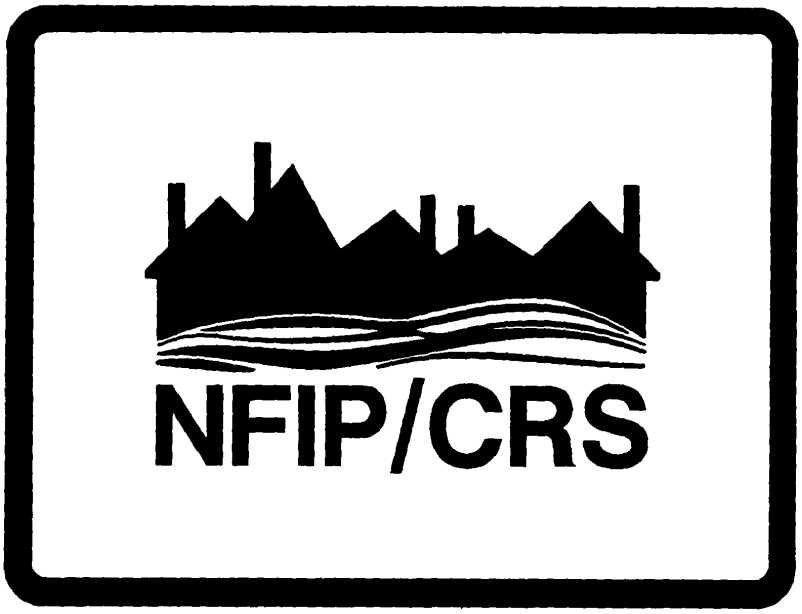
An Evaluation
of the
National Flood Insurance Program's
Community Rating System



Federal Emergency Management Agency

October 1998

CONTENTS

LIST OF ILLUSTRATIONS

EXECUTIVE SUMMARY

The NFIP's Community Rating System (CRS) was implemented in 1990 as a mechanism for recognizing and encouraging community floodplain management activities that exceed the minimum NFIP standards. The National Flood Insurance Reform Act of 1994 codified the Community Rating System in the NFIP. Under the CRS, flood insurance premium rates are adjusted to reflect the reduced flood risk resulting from community activities that meet the three goals of the CRS: (1) reduce flood losses; (2) facilitate accurate insurance rating; and (3) promote the awareness of flood insurance.

There are ten CRS classes: class 1 requires the most credit points and gives the largest premium reduction; class 10 receives no premium reduction. The CRS recognizes 18 creditable activities, organized under four categories numbered 300 through 600: Public Information, Mapping and Regulations, Flood Damage Reduction, and Flood Preparedness.

There are now nearly 900 communities receiving flood insurance premium discounts based on their implementation of local mitigation, outreach, and educational activities that go well beyond minimum NFIP requirements. While premium discounts are one of the benefits of participation in CRS, it is more important that these communities are carrying out activities that save lives and reduce property damage. These nearly 900 communities represent a significant portion of the Nation’s flood risk as evidenced by the fact that over 66% of the NFIP’s policy base is located in these communities. Communities receiving premium discounts through the CRS cover a full range of sizes from small to large, and a broad mixture of flood risks including coastal and riverine.

The CRS was developed and implemented with the benefit of advice and effort by Federal, State and local officials; professionals with expertise in floodplain management and insurance; and academicians. A multidisciplinary approach led to a successful implementation of the program and this same approach has been employed in reviewing and refining the CRS over the last eight years.

Since the CRS became operational in 1990, initial efforts to evaluate the program were geared towards refinements of materials and processes used in training, providing technical assistance, and in grading communities for CRS classification. These refinements were based on feedback from CRS Reviewers who grade CRS communities, community officials, States, and FEMA regional staff. The reviews of CRS operations have resulted in a more streamlined application process and an increased availability of technical assistance to communities.

In 1994, a formal evaluation of the overall effectiveness of the CRS was initiated. Over the last four years, FEMA planned and carried out a series of analyses to evaluate the CRS from the standpoint of achieving its overall goals. Due to the technical & statistical nature of these evaluation analyses, and the need for some impartial expertise, FEMA retained Human Technology, Inc., an education and program evaluation consulting firm to assist in this endeavor.

The data collection and analysis techniques included questionnaires and surveys, technical studies, site visits, focus groups and reviews by experts. These were used by FEMA to assess the intrinsic value and relative merit of the CRS creditable activities in terms of the three overall goals, replacing and updating some of the professional judgment used in creating the system.

A survey of local CRS community officials was conducted in 1996 to gather their opinions about the program and the flood loss mitigation and protection activities for which CRS credit is awarded. This survey indicated that the CRS significantly influences communities to improve

existing flood loss reduction activities and is a catalyst for undertaking new activities. As a consequence, it was determined that accelerating this realization of CRS goals could be accomplished by shifting emphasis from primarily encouraging new communities to join the CRS to encouraging communities already in the CRS to improve their class. Additional technical assistance to communities has been made available in order to facilitate this.

As a result of the evaluation efforts, three general conclusions were reached with regard to changes in the CRS creditable activities:

- Certain elements deserve more credit based on a review of their effectiveness in reducing flood losses.
- Communities should be encouraged to design their own programs.
- Scoring procedures and documentation requirements should be simplified.

Beginning in 1999, CRS application procedures and review criteria will include the following significant changes:

- Simplification of the application, scoring, and documentation procedures.

- A change in judgment regarding the relative importance of certain activities and how best to encourage them. Substantial increases have been made in the maximum number of points available for mapping and regulating the floodplain to standards beyond the minimum requirements of the NFIP, preserving open space, and acquiring, relocating, or retrofitting flood-prone properties.

- A particular emphasis on mitigating repetitive flood losses by increasing the credit for actions associated with those properties.

- To obtain a 30% (Class 4) or better premium discount for its citizens, a community will have to demonstrate that it has developed a comprehensive program to eliminate or minimize flood losses, and not just be undertaking a few "high-point" activities.

- Recognition that communities should design programs tailored to their local flood loss reduction needs.

- Emphasis on a community having, and enforcing, a state or nationally recognized building code. This supports the emphasis on building codes that are an integral part of FEMA's Project Impact, and similar programs, and demonstrates the synergistic nature of the current emphasis on mitigation.

Communities that are participating in the CRS are beginning to achieve higher classes, indicating that more of the significant flood loss reduction activities are being undertaken. Over the long term this will increase the benefits of the CRS and justifies the added expense of these classifications in the flood insurance rating system. The CRS has become an important tool for mitigation as well as a mechanism for integrating mitigation with insurance.

The costs borne by communities in implementing activities credited under CRS are justified by the reduction in losses to property and lives in the communities. These benefits accrue to the residents, whether they have flood insurance or not. The full cost-benefit of undertaking activities can only be assessed by the individual communities. The CRS provides a partial benefit in two ways: national recognition of local flood mitigation efforts, and premium reductions for those prudent enough to purchase flood insurance. The latter benefit totals about $50,000,000 annually in what policyholders pay for purchasing coverage in the 894 participating CRS communities versus what they would pay in non-CRS communities.

Recent national efforts have been implemented to encourage mitigation and to recognize those types of activities with regard to natural hazards in insurance rating systems. FEMA's Project Impact initiative promotes a multi-hazard approach at the local level. The insurance industry's Building Code Effectiveness Grading System integrates local community building code enforcement into the industry's premium rates. The CRS of the NFIP is an important component of this trend in mitigation.

Overall and strategic issues that can be pursued through the CRS in future years include:

(1) Supporting FEMA's Project Impact, and similar mitigation programs.

(2) Encouraging officials of communities already in the CRS to engage in activities that will improve their CRS class, thereby increasing protection for the lives and property of their citizens.

(3) Encouraging the local officials of communities not in the CRS to join.

(4) Encouraging local officials to use an all-hazards planning approach.

INTRODUCTION

The National Flood Insurance Program (NFIP) provides Federally backed flood insurance to encourage communities to enact and enforce floodplain regulations. Since its inception in 1968, the NFIP has been very successful in helping flood victims get back on their feet. There are now over 4.0 million policies in force nationwide. Since 1968, over $8.6 billion has been paid in flood insurance losses and more than $10 billion has been collected in premium.

To be covered by a flood insurance policy, a property must be located in a community that participates in the NFIP. To qualify, a community adopts and enforces a floodplain management ordinance to regulate development in flood hazard areas. Today, over 19,100 communities participate in the NFIP. The cumulative effect of having been requiring new construction to meet NFIP standards is now estimated to be a savings in flood damage of almost $800 million annually.

HISTORY OF THE COMMUNITY RATING SYSTEM

Although the NFIP has been successful in requiring that new buildings be protected from flood damage, it was generally agreed that more needed to be done to encourage communities to engage in meaningful mitigation activities affecting both new and old construction. In addition, there was no way to tangibly recognize the efforts some communities were making to mitigate their flood losses beyond NFIP requirements, nor was there any method in place to reward new mitigation efforts introduced by a community.

In 1987 the Federal Emergency Management Agency's (FEMA's) Federal Insurance Administrator appointed an advisory task force composed of Federal, State, and local officials; floodplain management experts; and insurance executives to study the feasibility of rating communities based on their floodplain management and flood loss mitigation efforts.

It was expected that such a rating system would enhance community loss reduction efforts and be economically feasible to administer. There was widespread recognition that the local community is the entity with both the primary authority to regulate floodplain development and the day-to-day involvement in floodplain management activities.

Program Development

The concept of a community rating system for flood insurance was inspired by the Public Protection Grading System (PPGS) used by the insurance industry to adjust fire insurance premiums according to a community's fire fighting and prevention capability. This approach has been employed and refined in fire insurance since 1912. The expertise and advice of the Insurance Services Office, the industry entity with responsibility for administering the PPGS, was a valuable part of the development and implementation of the community rating system. Whereas the PPGS addresses engineering aspects of a community's loss reduction capability, the rating system for the NFIP expanded the community grading concept to include ordinances and codes enforced by communities to reduce flood losses.

Support for the concept of a community rating system was expressed by a wide variety of academic, political, and technical groups. In fact, in 1987, in response to FEMA's Advanced Notice of Proposed Rulemaking on a community rating system, over 96% of communities submitting comments reacted favorably to the concept.

Because of the many disciplines required to develop such a program, it was recognized that resources and knowledge at the Federal level had to be supplemented. A Community Rating

Task Force (CRTF) was created, bringing together the disciplines of actuarial, engineering, floodplain management, insurance underwriting, and property insurance inspection and rating services. At its early meetings, the CRTF explored existing community rating systems for other lines of insurance, e.g., fire insurance, where the relative quality of a town's fire department and water supply affect the insurance premium paid by town residents. Goals for the system were proposed, and broad guidelines for implementation were set out. A field survey to demonstrate that community activities could be measured and assessed for credit was recommended.

In 1989, procedures were developed for training CRS field specialists and others. Further field testing involving over 100 communities was conducted so that implementation problems could be minimized. A handbook, or "commentary," was developed for use by local officials. Seventy-five workshops were held around the country for FEMA regional personnel, State officials, and interested communities. The Emergency Management Institute of FEMA began offering courses on how to help communities apply for participation in the new community rating system.

In September 1989, the CRTF and 20 technical advisors met to determine the relative value of Mapping and Regulatory Activities, Flood Damage Reduction Activities, and Flood Preparedness Activities, in order to establish a grading schedule for classifying communities. A "Delphi" approach to eliciting information and coming to consensus was utilized. The advisors consisted of academics, State and local officials, floodplain management experts, insurance executives, and specialists who had participated in the field studies on the community rating system. As a result of this "weighting forum," relativities were established that are still basically in effect today.

The NFIP's Community Rating System (CRS) was instituted in 1990 as a mechanism for recognizing and encouraging community floodplain management activities that exceed the minimum NFIP standards. Under the CRS, flood insurance premium rates are adjusted to reflect the reduced flood risk resulting from community activities that meet the three goals of the CRS: (1) reduce flood losses; (2) facilitate accurate insurance rating; and (3) promote the awareness of flood insurance.

The Task Force

The Community Rating Task Force, which was initially convened to assess the feasibility of a system for rating community floodplain management and later to assist with program development, has evolved into a standing body that provides multidisciplinary review of CRS operations and program materials. It makes recommendations to FEMA and the Federal Insurance Administrator on suggested changes. Since 1991 the CRTF has met regularly, holding each meeting in a different FEMA Regional Office city. This procedure enables the CRTF to meet with Regional Office staff. In addition, time is set aside at every meeting to discuss the CRS with community officials from the area. Also participating in these meetings are the local CRS field specialists who work directly with the communities. A significant number of refinements to the CRS have resulted from these meetings.

National Flood Insurance Reform Act of 1994

In 1994, the four-year-old CRS was codified under Subtitle C, Section 541, Community Rating System and Incentives for Community Floodplain Management of the National Flood Insurance Reform Act of 1994 (Riegle Community Development and Regulatory Improvement Act of 1994), and signed into law by President Clinton on September 23, 1994. It reads as follows:

> **Section 541 (b) (1) Authority and Goals. -** The Director shall carry out a community rating system program, under which communities participate voluntarily -

(A) to provide incentives for measures that reduce the risk of flood or erosion damage that exceeds the criteria set forth in section 1361 and evaluate such measures;

(B) to encourage adoption of more effective measures that protect natural and beneficial floodplain functions;

(C) to encourage floodplain and erosion management;

(D) to promote the reduction of Federal flood insurance losses.

Section 542 (B) (2) Incentives. - The program shall provide incentives in the form of credits on premium rates for flood insurance coverage in communities that the Director determines have adopted and enforced measures that reduce the risk of flood and erosion damage that exceed the criteria set forth in section 1361. In providing incentives under this paragraph, the Director may provide for credits to flood insurance premium rates in communities that the Director determines have implemented measures that protect natural and beneficial floodplain functions.

(3) Credits.-The credits on premium rates for flood insurance coverage shall be based on the estimated reduction in flood and erosion damage risks resulting from the measures adopted by the community under this program.

As a consequence of this legislation, FEMA revised its goals for the CRS as follows:

(1) Reduce Flood Losses, i.e.,
- protect public health and safety,
- reduce damage to property,
- prevent increases in flood damage from new construction,
- reduce the risk of erosion damage, and
- protect natural and beneficial floodplain functions;

(2) Facilitate Accurate Insurance Rating; and

(3) Promote the Awareness of Flood Insurance.

In anticipation of the eventual passage of this legislation, FEMA worked for two years with primary constituencies to develop agreed-upon CRS credits for coastal erosion and natural and beneficial floodplain functions. This work included numerous drafts of proposed activities and two public meetings at the Hall of States with all affected parties, including Congressional staff. As a result of these efforts, the July 1994 *CRS Coordinators Manual* contained new guidance for crediting community management of the coastal erosion hazard and preservation of the natural and beneficial functions of the floodplains.

THE COMMUNITY RATING SYSTEM TODAY

In order to recognize community floodplain management activities in this insurance rating system, they must be described, measured and evaluated. A community receives a CRS classification based upon the scores for its activities.

There are ten CRS classes: class 1 requires the most credit points and gives the largest premium reduction; class 10 receives no premium reduction (Table 1). A community that does not apply for the CRS or that does not obtain the minimum number of credit points is a class 10 community.

Table 1. Credit points earned, classification awarded, and premium reductions given for communities in the National Flood Insurance Program Community Rating System.

Credit Points	Class	Premium Reduction SFHA*	Premium Reduction Non-SFHA**
4,500+	1	45%	5%
4,000 – 4,499	2	40%	5%
3,500 – 3,999	3	35%	5%
3,000 – 3,499	4	30%	5%
2,500 – 2,999	5	25%	5%
2,000 – 2,499	6	20%	5%
1,500 – 1,999	7	15%	5%
1,000 – 1,499	8	10%	5%
500 – 999	9	5%	5%
0 – 499	10	0	0

*Special Flood Hazard Area
**Preferred Risk Policies are available only in B, C, and X Zones for properties that are shown to have a minimal risk of flood damage. The Preferred Risk Policy does not receive premium rate credits under the CRS because it already has a lower premium than other policies. Although it lies in an SFHA, Zone A99 also is limited to a 5% discount. Premium reductions are subject to change.

Community application for the CRS is voluntary. Any community that is in full compliance with the rules and regulations of the NFIP may apply for a CRS classification better than class 10. The applicant community submits documentation that it is doing activities recognized in the CRS. A community applies by sending completed application worksheets with appropriate documentation to its FEMA Regional Office.

A community's CRS classification is assigned on the basis of a field verification of the activities described in its application. These verifications are conducted by the Insurance Services Office, Inc. (ISO), an organization that provides rating, actuarial, and forms writing services to the insurance industry. ISO is the entity that has been conducting community grading for fire insurance for many years and is now performing the grading of communities under the newly implemented Building Code Effectiveness Grading Schedule. This organization's resources provide an efficient means to carry out the field work involved with the CRS.

Activities Credited under the Community Rating System

The CRS recognizes 18 creditable activities, organized under four categories numbered 300 through 600: Public Information, Mapping and Regulations, Flood Damage Reduction, and Flood Preparedness. Credit points allowed are based upon how well an activity meets the goals of the CRS. Formulas and adjustment factors are used to calculate credit for each activity. The 18 creditable activities are divided as follows:

- The 300 series (Public Information) activities credit public information programs that advise people about the flood hazard, flood insurance, and ways to reduce flood damages.

- The 400 series (Mapping and Regulations) activities credit mapping and regulatory programs that provide increased protection to new development. These activities include mapping areas not shown on the Flood Insurance Rate Map, preserving open space, enforcing higher regulatory standards, managing stormwater, and preserving the natural and beneficial functions of floodplains. Growing communities receive increased credit for these activities.

- The 500 series (Flood Damage Reduction) activities credit damage reduction programs for areas where existing development is at risk. Credit is provided for addressing repetitive loss problems, acquiring and retrofitting floodprone structures, and maintaining drainage systems.

- The 600 series (Flood Preparedness) activities credit flood preparedness activities, such as flood warning, levee safety, and dam safety programs.

Some of these activities may be implemented by the State or by a regional agency rather than at the community level. For example, some States have real estate disclosure laws that are creditable under Activity 340, Flood Hazard Disclosure. Any community in those States will receive those credit points if it applies for the credit and demonstrates that the law is effectively implemented within that community. The CRS recognizes some established methods for obtaining the credit in each activity, although communities are invited to propose alternative approaches to these activities in their applications.

The benefits of reduced insurance rates combined with the rewards of increased public safety, reduced damage to property and public infrastructure, avoidance of human suffering, and protection of the environment have encouraged nearly 900 communities to apply for and receive CRS benefits. Local planners have reported using the CRS insurance incentives to gain the necessary backing to implement floodplain management programs and activities that had not previously been included in local budgets.

Status of CRS Communities

The first application cycle of the CRS ended in December 1990, when over 300 applications were received. As of October 1, 1998, the cumulative number of communities in the CRS is 894 (Figure 1). A class 9 can be achieved by implementing activities that are relatively easy. However, to improve its classification, a community must take on additional flood loss mitigation activities that can be increasingly expensive and require tougher political decisions. The cities of Tulsa, Oklahoma, and Sanibel Island, Florida, are the two best-rated CRS communities in the nation, at class 5 (25% premium discount), and are good examples of communities that have made these tough decisions about managing their floodplains. It is part of the underlying strategy of the CRS that communities join and then are encouraged to improve their classifications. Over 44% of all CRS communities are class 8 or better.

Although the 894 communities in the CRS are a small percentage (5%) of the total number of NFIP participating communities (19,100), the CRS communities represent over 66% of all policyholders. It is important to note that these 894 communities must undertake and demonstrate flood loss mitigation activities above and beyond the significant level of activity already required for minimum NFIP participation. Even communities that are in class 10 (and in good standing with the NFIP) carry out significant flood loss reduction activities. Since 1986, an estimated 2.6 million buildings have been constructed in floodplains meeting these minimum NFIP flood resistance standards. Without these standards, those buildings would have been constructed significantly more prone to flood damage.

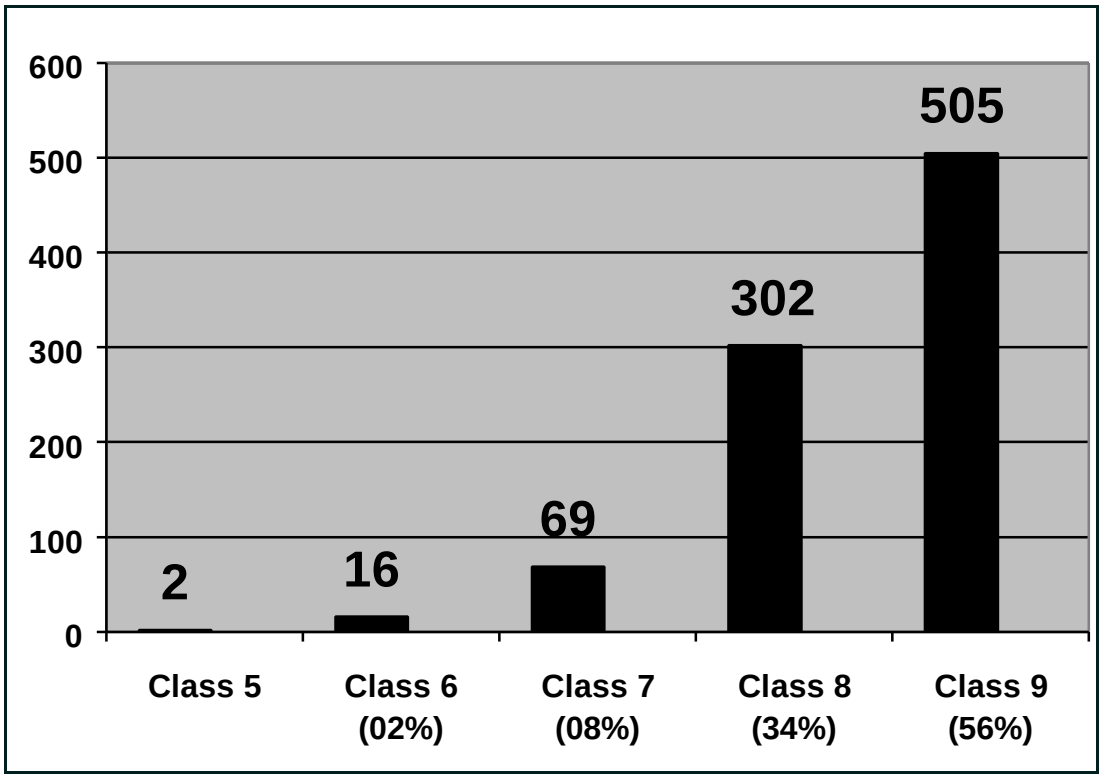


Figure 1. Number of communities in the National Flood Insurance Program Community Rating System, by class, as of October 1, 1998.

Demographics

Full data for demographic analyses were available on 883 of the 894 CRS communities. The 883 CRS communities are from all ten FEMA regions and from most states. A few states have no communities participating in the CRS, while Florida has 194 and North Carolina has 74. The communities currently average 914 CRS points.

Population Groups

The population of the 883 CRS communities ranges from about 100 to almost 3.5 million, with an average of about 77,000. Although this average population is fairly large, 200 CRS communities have a population of 5,000 or less, while at least 26 CRS communities have a population of 500,000 or more. The 283 “small” communities have populations less than 10,000. The 309 “medium” communities have populations between 10,000 and 49,999. The 291 “large” communities have populations of 50,000 or more. These populations are based on information provided by the communities or other sources, and may not be entirely accurate. For example, a county may have given its total population rather than the population in the unincorporated areas, which is what counts for CRS purposes.

Small communities currently average 898 CRS credit points, 2.1% lower than the average for all CRS communities. Communities with medium-sized populations average 853 points, or 6.7% lower than average. Large communities currently average 1,002 points, or 9.6% better than the average.

Growth Rate

Population growth rate is important in floodplain management. Communities with little or no growth may have serious existing flood problems, which are addressed in the 500 series of CRS activities (Flood Damage Reduction). In rapidly growing communities, regulation of new construction is important. This is addressed in the 400 series of CRS activities (Regulatory and Mapping Activities). The growth rates of CRS communities range from negative (loss of population) to over 5% growth annually; the average annual growth rate of CRS communities is about 2.2%. There are 219 CRS communities with an annual growth rate of 1.0% or less, while 68 have annual growth rates of 5.0% or more. Sixty-four communities are experiencing no growth or a loss of population.

The growth rate directly affects a community's CRS credit. The credit for all activities in the 400 series is increased by 10 times the average annual growth rate for the community. This is accomplished by multiplying the credit by (1 + (growth rate x 10)). A community with no growth receives the base credit for its 400 series activities. A community with a 2% annual growth rate receives 120% of its base credit, and a community with a growth rate of 5% or more receives 150% of its base credit for those activities.

The communities with little growth currently average 801 CRS credit points, or 87.6% of the average credit for all communities. The communities with moderate growth average 917 points, or 100.3% of the average. Rapidly growing communities average 1,015 points, or 111.1% of the average credit for all communities.

Coastal and Inland Communities

The CRS communities were divided into coastal (34%) and inland (66%) groups for analysis of their CRS credit. Coastal communities were identified as those with a coastal floodplain or a coastal V Zone. Coastal communities include those that front on the Great Lakes. Communities not so identified are considered inland communities. Note that by this classification, some coastal communities may have a large amount of non-coastal, or "inland," floodplains in addition to their coastal areas.

The 296 coastal communities average 977 CRS credit points, or 9.0% more than the average for all communities. The 587 inland communities average 869 credit points, or 3.1% less than the average for all communities. Coastal communities have an average population of 84,517, compared with 72,685 for inland communities. Coastal communities have an average growth rate of 2.7% compared with 2.0% for inland communities.

Annual Costs of Implementation

The annual costs for implementing the CRS program, like all other administrative expenses of the NFIP, are funded from policyholder premiums. The costs fall into two categories: staff resources and operating costs.

The staffing category covers the investment of time by State, Federal, and associated CRTF staff involved in direct program management and implementation of the CRS. That time is summarized into an average annual total cost of $576,000, for 11.4 FTEs.

The operating costs include the office and field review of all community applications, program oversight and quality control, preparing and printing all CRS publications, all program travel, subsidizing community and State participation at three annual CRS classes at FEMA's Emergency Management Institute, and all other miscellaneous program costs. The total annual

staffing and operating costs for the CRS are currently estimated to be approximately $3,700,000 and have been at essentially this level for the last seven years.

MAKING IMPROVEMENTS TO THE COMMUNITY RATING SYSTEM

Improving Program Operations

Since the CRS became operational in 1990, there has been continuing analysis to refine the operation of the system.

Through monitoring the work performed by the field specialists who grade CRS communities and obtaining other feedback from communities, States, and FEMA regional staff, improvements are made to the field operations of the CRS. The creditable activities and procedures for community application, modification, and verification are addressed by collecting data from application reviews, verification visits, comments and suggestions at workshops and conferences, written suggestions from communities, and reports on technical floodplain management developments.

The CRTF has been a valuable multidisciplinary resource for reviewing proposed program changes. The Task Force members, especially those who represent local, State, and FEMA Regional Offices, have their own direct sources of information. In addition, each CRTF meeting is attended by representatives of the host FEMA Regional Office and a local CRS field specialist. Local officials and CRS Coordinators from communities in the area are invited to provide their comments on the program.

The in-stream changes that resulted from this ongoing analytical process have varied from adjusting the points of an individual element in the grading schedule to major changes in the *CRS Coordinator's Manual*, the document that provides local communities the information they need to apply and participate in the CRS. The negative feedback that has been received through these channels and through the survey of local officials has generally related to the administrative costs to the community versus the benefits of the CRS and the complexities of the crediting system. These concerns have been raised in other forums as well and in fact have been largely addressed by streamlining the application procedures and providing additional technical assistance.

Improvements to Serve Customers

FEMA has made great strides in streamlining its activities to more efficiently and effectively serve its customers. Most of the major changes to CRS procedures are a direct result of FEMA’s attempt to make the CRS more customer friendly, while assuring that CRS programmatic needs are still met. The CRTF has worked hard to examine every part of the CRS to define those bureaucratic processes that could be lessened or simplified, with the communities in mind.

The CRS application and verification process is designed to observe and measure the level to which a community is carrying out activities that contribute to the three CRS goals, but especially the main goal of reducing flood losses. At every meeting, the CRTF deliberates how to strike a reasonable balance between a blanket certification by the community itself that it is doing everything properly and FEMA’s need to observe and measure the right activities to assure its constituencies (Congress, the States, NFIP policyholders, etc.) that FEMA is not inappropriately awarding CRS points and the commensurate premium discounts.

By and large, the improvements made to the CRS over the last five years have attempted to limit the application burden on communities and shift the details to the CRS reviewers and other CRS personnel. Many of the following major changes reflect this commitment:

- Elimination of the annual December 15 application deadline. This reduced the time crunch on applicants and application reviewers and resulted in a longer shelf life for the CRS materials.

- Initiation of the *CRS Application*. This has simplified the application process by relegating the more complicated credit point calculations to the verification visit with the community. From the start of the program, communities had voiced concern about how complicated it was to apply for a CRS classification. The old application included a worksheet for each activity with acronyms and algebraic formulas to calculate credit points. Subsequent verification visits revealed that almost all communities had made errors in their applications.

  The new *CRS Application* is exclusively for first-time applicants. Although it includes all CRS activities, it has no acronyms or formulas. Applicants apply for activities using scores based on the average points from the first five years of the program. During the verification visit, the community is graded using the formulas to calculate the true or verified score. The documentation and verification requirements have not changed.

  In addition, CRS field specialists now provide even more technical assistance to communities before, after, and especially *during* a verification visit. FEMA is committed to ensuring that a community receives full consideration of all the flood mitigation activities it implements, not just those for which it understands the application process.

- Replacement of the "reapplication" process with a reverification/technical assistance (cycle) process. This emphasizes providing assistance to communities while verifying that they are still implementing their previously credited activities. Every five years (every three years for communities in classes 1 through 5) a community is subject to reverification to confirm that it is still implementing its credited activities. Previously, communities had to submit a complete application with documentation and undergo another verification visit. This process eliminates the formal submittal of a three- or five-year application.

- Addition of "default" values to simplify the credit calculation process. The CRS scores must be calculated for every activity and element in order to determine how much insurance premium rate reduction a local program deserves. Sometimes, the data needed to calculate the scores can be hard to obtain. The default options also help communities to receive a minimum number of points for activities in which they are engaged.

- Publication of "model program" documents. Even though the *CRS Coordinator's Manual* provides explanatory information on the credit criteria, communities had asked for more information and examples on certain activities.

  The model programs average 50 pages. They include a more detailed explanation of the credit criteria and one or more examples from real and fictitious communities. Several of these publications have been used by non-CRS communities and in floodplain management and hazard mitigation training programs.

- Development of materials and new approaches to explain the CRS and its flood loss reduction benefits to elected officials and citizens, including CRS brochures, targeted outreach materials, CRS booths at major conferences, and a 12-minute video.

- Replacing the single annual effective date with two dates, April 1 and October 1, streamlined the application process and reduced the time needed for communities to receive their verified classification.

- Development and distribution of free computer CRS application software has helped communities calculate credit points, prepare their applications, and record elevation certificate data.

- The publicity requirements for various activities have been simplified.

- A special review process has been established for regulatory recognition of flood mitigation activities and new approaches not otherwise covered in the *CRS Coordinator's Manual*.

- The floodplain management and repetitive loss planning criteria have been revised to emphasize a standard all-hazards planning process.

EVALUATING THE EFFECTIVENESS OF THE COMMUNITY RATING SYSTEM

In order to assess whether the CRS strategy is effectively achieving its goals, three main aspects of the program must be addressed: (1) the procedures and materials used to implement the CRS, (2) the accuracy of the grading schedule in rating community performance, and (3) the CRS's progress in meeting its goals. As noted in the previous section of this report, the first of these aspects was the focus of many of the efforts to improve the program during the early years of implementation.

In 1994, it was agreed that the time was right to begin a formal evaluation of the second and third components and, thus, the overall effectiveness of the CRS. Over the last four years, FEMA planned and carried out a series of analyses to evaluate the CRS from the standpoint of achieving its overall goals. Due to the technical & statistical nature of these evaluation analyses, and the need for some impartial expertise, FEMA retained Human Technology, Inc., an education and program evaluation consulting firm to assist in this endeavor.

A survey of local officials was conducted in 1996. The purpose was to gather the opinions of local officials in CRS communities about the program and the flood loss mitigation and protection activities for which CRS credit is awarded. The opinions of those closest to the implementation can be an excellent indicator of the activities' benefits over the long term and of the value of the CRS as an incentive to further mitigation activity. Questions about customer service were also included.

Survey data were analyzed using relevant demographic categories, including community population size, location, flood and loss histories, and flood insurance market penetration. Findings from the survey appear throughout this report.

Accuracy of the Grading Schedule

Part of the purpose of the CRS evaluation was to assess whether changes should be made to the point and classification system to better reflect what the premium discounts should be. One way to do this might be to review flood insurance loss experience by CRS class. Differences in loss experiences for the various classes could indicate the need for adjustments in either the number of points required to achieve certain classes, or in the premium discounts provided to different classes. However, the nature of the flood peril itself, which causes wide swings in loss experience from one year to the next, and the infancy of the CRS, make loss experience an unreliable indicator of how adjustments should be made. Thus, CRS evaluation plans called for a different approach.

Through various data collection and analysis techniques, including questionnaire/surveys, technical studies, and site visits, FEMA has assessed the intrinsic value and relative merit of the CRS creditable activities in terms of the three overall goals: flood loss reduction, accurate insurance rating, and flood insurance awareness. This replaces and updates some of the judgment calls that were made in creating the system, and has provided some insight into whether the CRS recognizes real differences in risk among the communities.

Certain activities that are credited under the CRS have been reviewed by panels of experts in order to advise FEMA whether the credit criteria are appropriate. In addition, technical studies have been made to refine the estimates of the flood loss reduction potential of various activities included in the grading schedule for the CRS. In 1996, the occurrence of Hurricane Fran presented the opportunity for FEMA to conduct a post-disaster review of the performance of the measures undertaken by some CRS communities.

Since the CRS has been in operation, many of the individual activities for which communities receive credit have evolved into something quite different than originally discussed at the 1989 weighting forum. Information about CRS activities gathered during the various evaluation efforts was used as a basis for discussion at another forum of experts held in Bethesda, Maryland, in October 1997. The results of this forum were a set of recommendations to the CRTF for refining the point schedule to better reflect the relative merits of the activities being credited.[1] The results of this "weighting review" are incorporated into the changes in credit received for the various activities.

Effectiveness of the CRS Strategy

Evaluation efforts were also aimed at determining the overall impact of the program in achieving the three goals on a national level. In other words, are enough communities doing enough of the right things so that there is significant reduction in flood losses nationally, along with more accurate insurance rating and heightened awareness of flood insurance? The CRS application and verification processes reveal what activities are being undertaken by the communities, and their point scores can be computed. Questionnaires and other techniques helped determine the extent to which the CRS has been a catalyst for initiating and improving local efforts.

The results of the local officials questionnaire in particular helped determine how the CRS could be enhanced to achieve greater national impact. In the last couple of years, there has been a shift in emphasis from primarily encouraging new communities to join the CRS to encouraging communities already in the CRS to improve their class. This can only be accomplished by engaging in more activities, or by strengthening current activities. Toward that end, FEMA has changed the mission of the CRS field specialists who work directly with the communities. Previously, their primary function was to confirm and record what a community was doing, perform the mechanical job of adding up the resultant "points," and process the paperwork.

They now work more closely with community officials to determine what a community could do to earn "points," and advise and assist them in improving their mitigation efforts. The initial success of this strategy is evident. In 1996, 32% of all CRS communities were rated as Class 8 or better. By October 1, 1998 (see Figure 1), that number had improved to 44%.

Justification of CRS Program Expenses

In preparation for the evaluation of the CRS, a planning report was completed in September 1994 and updated in January 1995.[2] In that report, two aspects of the CRS strategy were examined to determine how a justification of the benefits of CRS could be quantified. These aspects were the CRS as a system for recognizing activities that meaningfully distinguish one class of communities from another, and the CRS as a catalyst for communities to initiate new activities.

It was proposed that the Federal administrative costs of CRS would be justified by an increasing number of communities (and policyholders) rising to higher classes. A system that, for example only resulted in distinguishing between Class 10 and Class 9 communities, i.e., a 5% premium differential, might not be considered worth its administrative costs of about $3.7 million per year. Table 2 shows that progress is being made in the system's recognizing an increasing differential in classifications. It should be noted that the NFIP's annual premium income is well over one billion dollars.

Table 2. Increasing premium differential in the CRS.

CRS Class	Premium Differential	1994 Distribution of SFHA Contracts	1998 Distribution of SFHA Contracts
5	25%	0.1%	0.3%
6	20%	0.0%	1.0%
7	15%	0.7%	12.8%
8	10%	12.7%	29.3%
9	5%	29.2%	19.7%
10	-	57.4%	36.9%
Class 8 or Better		13.5%	43.4%

The 1994 report also estimated that the Federal administrative costs of the CRS could be justified by encouraging communities to undertake activities not otherwise being carried out that resulted in an average of 60 points per community. This was calculated as the point value equivalent to approximately $4 million reduction in losses to insured and uninsured properties in CRS communities. As discussed in later sections of this report, the overwhelming responses from the various surveys of local officials and floodplain residents indicate that CRS is indeed a catalyst for new activities.

Taken together, the above results show that the Federal costs of implementing CRS are more than justified by the benefits being obtained.

The costs borne by communities in implementing activities credited under CRS are justified by the reduction in losses to property and lives in the communities. These benefits accrue to the residents, whether they have flood insurance or not. The full cost-benefit of undertaking activities can only be assessed by the individual communities. The CRS provides a partial benefit in two ways: national recognition of local flood mitigation efforts, and premium reductions for those prudent enough to purchase flood insurance. The latter benefit totals about $50,000,000 annually in what policyholders pay for purchasing coverage in the 894 participating CRS communities versus what they would pay in non-CRS communities.

Evaluation Efforts with Broad Perspectives

Rather than focusing on any one activity, certain evaluation efforts addressed many CRS activities simultaneously, or tackled broader issues. These evaluation efforts—the Local Officials Survey, the post-Hurricane Fran review of CRS activities, and the Weighting Review—are discussed below.

Survey of Local Officials

Background—The Local Officials Survey was designed to determine local officials' opinions about the effectiveness of the CRS program and the usefulness of specific flood protection activities for which credit is provided.[3] The survey was developed with input from the CRS Evaluation Committee and tested with groups of local CRS Coordinators in Chicago, Illinois, and Wilmington, North Carolina, where CRS Coordinators completed a draft version of the survey. After the pilot tests, the survey was finalized and distributed. After two weeks, a second survey was sent to individuals who had not returned the first one.

Surveys were sent to a total of 897 CRS Coordinators, representing every community participating in the CRS program from 1990-1994. Of that number, 661 surveys (or 73.69%) were returned. This high return rate means that the confidence level for the survey exceeds 95%. The data collected from the Local Officials Survey were analyzed by the following components: demographics (location, community size), flood history, percentage of flood insurance policies in force, and repetitive losses. In addition, various statistical analyses were run on the demographic variables for selected questions. In general, no demographic variable had significant effects across all questions.

Overall Findings—The overall findings from the survey are summarized below.

- Survey respondents had a positive attitude toward the CRS program and its benefits.
- Respondents thought that the program provided a source of information to help educate the public and protect their citizens from flooding. Although local CRS Coordinators do not always receive direct feedback from citizens about the effectiveness of the CRS program, they indicated that the activities are of value to their communities.
- 80% of the respondents indicated that their time and effort in participating in the CRS was worthwhile.
- Respondents noted that the overall credit system was fair but should be kept simple. They suggested that the program focus less on the processes used and more on the desired outcome.
- Based on survey comments, the activity that provides credit for community outreach projects was determined to need further evaluation and review.

Findings on the Effectiveness of the Community Rating System—

- 81% of the local officials responding to the survey considered the CRS scoring system to be fair.
- The survey indicates that the CRS is having a significant impact on communities' modifying their activities and implementing new ones: 87% of the respondents indicated that CRS points (and therefore premium credits) were an important factor in determining the activities for which application for credit would be made. Eighty percent of the local officials thought that the CRS had a positive effect on their communities' approach to flood issues.
- Respondents to the Local Officials Survey indicated that citizen interest, Federal and State mandates, and the availability of funding were the most important encouragement for communities to undertake new mitigation activities. However, CRS points were on a par with the effects of recent flood experience (indicated by 78%), and the receipt of expert advice (indicated by 82%) was also rated as important.
- CRS technical information was cited by 65% of the respondents as being important in deciding whether to undertake new floodplain management activities. This is an interesting result because CRS materials were not written to be educational or training tools, but were intended merely to demonstrate how various activities would be scored under the CRS. CRS training and technical assistance was rated good to excellent by 85% of the respondents.
- Sixty-seven percent of the local officials responding to the survey believe that their residents are aware of the CRS and premium discounts.
- About 42% of the CRS communities have properties subject to repetitive flood losses. There are mandatory requirements under CRS for those communities. Those with more than a threshold number of problem properties are required to develop plans that address the repetitive flood problem. Of the respondents from repetitive loss communities, 61% reported that the CRS requirements for mapping repetitive loss areas and doing outreach to residents of those areas resulted in flood protection measures being taken, either by the community or by property owners.

  It should be noted that it is difficult to judge whether this is sufficient. Repetitive losses are a major issue for the NFIP and the survey indicates that at least a substantial portion of CRS communities are seeing progress spurred on by the CRS requirements. In many cases, the measures needed to address repetitive flood problems are costly and this may explain why more respondents are not seeing greater results. The Weighting Review discussions have led to the decision to significantly increase CRS credits for activities directly affecting repetitive flood problems.
- More respondents from small- and medium-sized communities indicated that the CRS was an incentive to implementing certain activities than did respondents of large communities. Although this may be because some activities are more easily implemented in smaller communities, it is more likely that the CRS has helped smaller communities catch up to larger communities in activities like adopting higher regulatory standards for floodplain development, managing stormwater, retrofitting structures with flood protection, and implementing flood warning systems.

The CRS application and verification process identifies what activities are being undertaken by the communities. When that information is coupled with actual data from the responses to the Local Officials Survey, it becomes obvious that the overall effectiveness of the CRS is very

good. The survey shows that the CRS significantly influences communities to modify existing flood loss reduction activities and to undertake new activities.

Time and Effort for the Community Rating System—Eighty-two percent of the local officials responding to the survey thought that the time and effort spent on CRS was worth it to their communities. Analysis showed that there is agreement among communities regardless of their flood history. Still, results indicate that communities with a higher insurance policy count have a more favorable attitude towards the time and effort required of the CRS.

The Community Rating System as a Vehicle for Raising Public Awareness—Of the respondents, 91% reported that citizen interest is important in convincing community decision makers to undertake new mitigation activities. The CRS was rated as effective or very effective in increasing citizen awareness of flood insurance by 80% of the respondents. But only 67% of respondents thought that floodplain residents are aware of the CRS discounts and therefore are more supportive of floodplain management activities. It was unclear from this survey's results whether the relatively low rating for support of floodplain management activities was due to many floodplain residents being unaware of the CRS discounts or to being unmotivated by them. The survey of floodplain residents, conducted later, was used to help sort this out. Respondents also indicated that the CRS provides a good source of information to help educate the public and help them protect themselves from flooding.

Communities with a high percentage of flood-insured households perceive a greater overall effectiveness of the CRS. Communities with greater flood insurance market penetration also tend to have higher citizen awareness of premium discounts and resulting public support for floodplain management. Many of the activities that are harder to implement—open space preservation, higher regulatory standards for floodplain development, and retrofitting buildings for flood protection—are more common in these communities. These findings have implications for NFIP marketing efforts as well as floodplain management: increasing the numbers of flood insurance policies within a community should be beneficial to both the mitigation and insurance aspects of the NFIP.

Western States' Responses—Responses from western States to the Local Officials Survey revealed a perception that the CRS was less effective than in other geographic areas. The Evaluation Committee determined that three demographic variables (coastal vs. inland, number of policies in force, and community size) have a significant impact on the responses from the western States. These findings correlate to what one would expect to happen with these variables. The West has fewer CRS coastal communities than inland communities (coastal communities give the CRS a higher effectiveness rating) and fewer policies in force (communities with a higher policy count rate the CRS higher). The western States also have larger-population CRS communities (smaller communities rate the CRS higher). Because the response rate for the western States was a high 84.24% (compared to a response rate for all communities of 73.51%), it was concluded that the western States were adequately represented in the survey findings. Further, it was concluded that the perception of effectiveness was not inherently a western problem.

Post-Hurricane Fran Evaluation of the Community Rating System

Hurricane Fran hit North Carolina in September 1996, affecting many communities that participate in the CRS. The area affected was appropriate for collecting data on two areas of interest to FEMA: measuring the benefits of mitigation and evaluating certain aspects of the CRS.

A report was commissioned by FEMA to assess the benefits provided by selected mitigation activities implemented by communities and credited by the CRS. The objective was to put a

dollar figure on the actual flood damage prevented by the mitigation activities in a real event, as opposed to theoretical calculations of benefits and costs.

The project team reviewed nine CRS mitigation activities and elements in 11 communities affected by Hurricane Fran: six coastal and five inland. The team collected flood data and interviewed local officials. It estimated damage data and compared that data with available disaster assistance and flood insurance claims payments.

The team found the following significant savings for selected mitigation activities:

- If open space areas had been allowed to develop in accordance with the zoning for neighboring areas, Hurricane Fran would have caused up to $35,600 more damage per acre. Open space preservation saved at least $12 million in one affected area of 340 acres.
- Structures built with no flood protection standards suffered twice the damage of those built to NFIP standards, and four times the damage of those built to the newer state coastal construction standards.
- Coastal erosion setbacks pay off: buildings seaward of the 30-year setback line suffered four times the damage suffered by buildings landward of the line.
- Buildings built according to older foundation protection standards suffered two and a half times the damage level of buildings built to newer criteria.
- The damage to non-elevated buildings was six times the damage to neighboring buildings that had been retrofitted by being elevated.
- A flood warning system on the Neuse River worked: protective actions were taken to protect public and private properties, preventing some flood damage and pollution.

For a variety of reasons, not all of the mitigation activities selected for the study could be evaluated. In particular, CRS summary data do not fully explain how activities are being implemented. The site visits found some activities to be too limited or localized to draw conclusions that would apply to other communities.

The project team found many problems and learned many lessons in identifying and measuring the benefits of CRS mitigation activities. For example, the flood event needs to exceed the base flood to evaluate some activities, such as freeboard, and needs be a relatively small event to evaluate others, such as stormwater management. The lessons learned are incorporated into another report, *Handbook for Post-Flood Evaluation of CRS Mitigation Activities*, which the project team prepared for FEMA.[4]

Weighting Review

In order to synthesize the various evaluation results and to develop a coherent set of recommendations for CRTF deliberation, a Weighting Review (so-called because of the weights assigned to activities in the CRS grading schedule) was held in October 1997. Twenty-five representatives from Federal, State, and local government agencies, the insurance industry and private consultants participated. As with the original Weighting Forum held before the implementation of the CRS, this session's participants, with the benefit of much more CRS experience and detailed information, were charged with reviewing the relative merits of the CRS activities and refining the point system to reflect the flood loss reduction benefits and other overall strategic considerations.

In preparation for the session, estimates were made of the quantifiable benefits for certain activities that lent themselves to such calculations. These "control point" activities included

Open Space Preservation, Additional Flood Data, Higher Regulatory Standards, Acquisition and Relocation, and Retrofitting. Using depth-damage and frequency information underlying the flood insurance rate model, percentage reductions in expected losses were estimated and then equated to premium credits. (In the CRS, 500 points are equated to a 5% premium reduction.) Depth-percentage damage values were modified to represent either (1) direct protection to higher levels (e.g., a levee or berm), or (2) the protection afforded by an activity preventing an increase in flood levels from those used to establish rates for the insurance policies.[5]

Ultimately, the point and classification system under the CRS should reflect the NFIP's underwriting experience. Since a credible body of data for these purposes will not be available in the near future, the points assigned today must reflect a projection of the underwriting results. In assigning credit for CRS activities, the duplication of aspects of the insurance rating that are already embodied in the rate table classifications should be avoided. Because the classes of the CRS are used essentially as a risk classification scheme for those insured under the NFIP, the credits are primarily oriented so that they reflect expectations of losses associated with the premium being collected to cover those losses.

It should be emphasized that the significance of the control point estimates was not so much in providing absolute measures as in providing the basis from which the group could apply its collective judgement. The modeled results gave the group a sense of appropriate proportion. The recommendations for final point values considered real-world experience as well as strategic concerns for encouraging and recognizing the best community mitigation efforts over the long term.

A significant issue addressed by the Weighting Review participants, and later by the CRTF, was how the CRS should recognize and reinforce a balance between a community's efforts to resolve existing flood problems and its efforts to prevent future problems. In the original design of the CRS grading schedule, this was handled by seeking parity in the points available for activities regulating new construction and for activities remedying past problems such as Acquisition and Relocation, and Retrofitting. The CRS evaluation revealed that this mechanism may also be having the undesired result of providing too little credit (and incentive) for the remedial activities that require steep investment on the part of communities. To improve this situation, the available points for certain activities, notably Acquisition and Relocation, and Retrofitting, have been significantly increased. This is expected to provide better recognition for a community's remedial activities, particularly its initial efforts. The issue of balance has been addressed by requiring that in order to attain a Class 4 or better, a community must demonstrate that it has taken steps to mitigate future losses. Thus, a community cannot attain the higher classes merely by removing old problems, but must also receive credit for activities related to Higher Regulatory Standards, Stormwater Management, and Floodplain Management Planning.

Evaluation of Individual CRS Activities

The focus of much of the evaluation was on assessing the value of the individual CRS activities for which credit is provided. Focus groups, literature reviews, technical reviews by panels of experts, and other means were used to accomplish this. Three general conclusions were reached with regard to changes in the activities:

(1) Certain elements deserve more credit based on a review of their effectiveness in reducing flood losses.

(2) Communities should be encouraged to design their own programs.

(3) The scoring procedures and documentation requirements should be simplified.

Each CRS activity that was evaluated is discussed in this section. First, the activity is summarized, then the CRS evaluation efforts employed, if any, are described. Finally, a description is given of the changes proposed for the 1999 *CRS Coordinator's Manual* and the CRS grading schedule as a result of these analyses, the CRTF's review, the results of the Local Officials Survey, and the Weighting Review. Table 3 summarizes the point changes for the 1999 *CRS Coordinator's Manual.*

Activity 310, FEMA Elevation Certificate and Activity 320, Map Information

Credit is provided under Activity 310, Elevation Certificates, if a community maintains records of flood data and elevations of new and substantially improved/damaged buildings on FEMA's Elevation Certificate. The community must ensure that the certificates are correct, and they must be made available to any inquirer.

Activity 320, Map Information, provides credit for communities that read FEMA's Flood Insurance Rate Maps (FIRMs) in response to requests from the public, with the primary audiences being insurance agents, real estate agents, and lenders.

Evaluation—Because of concerns expressed by insurance agent groups about the value of these activities, evaluation efforts were concentrated on obtaining more detailed feedback from the insurance agents. To test the value of these activities it was decided to visit with three insurance agent groups. The effort was coordinated with the Flood Insurance Producers National Committee. Two meetings were conducted in Miami and Tampa, Florida, in November 1996, and insurance agent site visits were conducted in Huntington Beach, California, in January 1997. The meetings were conducted to collect information from insurance agents about their awareness of the services offered by CRS communities. The information collected helped in assessing the value of the current elevation certificate, map information service, and outreach activities.[6]

The following findings were consistent themes identified by agents at both Florida locations.

- A simplified process of obtaining information is needed.
- National education and outreach about CRS to all homeowners/individuals are essential.
- NFIP national advertisements about flood insurance are great. Outreach by the community officials is literally non-existent. If anyone is educating the public about obtaining flood insurance locally, it is insurance agents or lenders (through the mandatory purchase requirement).
- Insurance agents need to be told who their community official is and how to contact that person.

Table 3. Summary of changes in credit points in the 1999 *CRS Coordinator's Manual.*

300 Public Information

310 Elevation Certificates: No change
320 Map Information: No change
330 Outreach Projects: Max 250 → 290
- OPC: No change in max points
- OPF: No change in max points
- OPA: No change
- OPS: 0 → 100 (new alternative to OPA)

340 Hazard Disclosure: No change in max points
350 Flood Protection Library: No change
360 Flood Protection Assistance: No change

400 Mapping and Regulations

410 Additional Flood Data: 360 → 1,230
- RFE: 50 → 250 (includes new items)
- ADS: 75 → 165 (some items dropped)
- FWS: 20 → 200
- NFS: 50 → 200
- NFS is mutually exclusive from RFE, so the maximum possible for 410 is 600 points. An impact adjustment of 2.0 doubles the score.

420 Open Space Preservation: 550 → 900
- OS: 375 → 725
- DR: No change
- NB: No change

430 Higher Regulatory Standards: 905 → 1,705
- FRB: 130 → 300
- FDN: No change
- CSI: No change in max
- LSI: No change in max
- PCF: 20 → 100
- PSC: No change
- NBR: 25 → 40
- ENL: 50 → 300
- OHS: No change
- LZ: 340 → 600
- SMS: 0 → 25 (new)

440 Flood Data Maintenance: 130 → 211
- AMD: 100 → 121, two new items
- ERM: 30 → 90, new items

450 Stormwater Management: 405 → 580
- SZ: 40 → 25
- DS: 155 → 90
- PUB: 30 → 110
- SMR: 225 → 225
- SMP: 25 → 225
- SRSM: 25 → 0 (moved to SMP)
- FRX: No change in max
- ESC: No change in max
- WQ: No change

500 Flood Damage Reduction

510 Floodplain Management Planning: 210 → 230
520 Acquisition/Relocation: 1,600 → 3,200
530 Retrofitting: 1,400 → 2,800
540 Drainage System Maintenance: No change in max points
- CDR: No change in max points
- SDR: No change in max points

600 Flood Preparedness

610 Flood Warning: No change in max points
620 Levee Safety: No change
630 Dam Safety: No change

The following were consistent themes identified by agents in California:

- Agents knew that their customers were receiving a flood insurance discount, but did not really know what the CRS was.
- Agents were not aware that there was an established system for getting the information they need. They used the services (map information and elevation certificates) but did not know that they were community-supported endeavors.
- Agents do not write very much flood insurance.
- Agents do not do much advertising for flood insurance. The most outreach they see is through the NFIP ads. Local advertising is minimal.
- Flood insurance is the type of insurance most misunderstood by agents and policyholders alike.
- Building departments are the main source of information.
- No specific outreach exists for flood insurance within a community.

1999 Changes to CRS—There are no changes in the CRS points allocated for these activities. However, FEMA will revise all agent training and program informational material. Also, information will be added to the NFIP website so that agents know whom to contact for map and elevation certificate services in a CRS community. In general, FEMA will work with its insurance partners to inform them that CRS communities may have this information available to help in writing flood insurance.

In addition, it is the community's responsibility to make sure the map it uses for the information service reflects new subdivisions, flood insurance restudies, letters of map revision, and letters of map amendment. Coastal communities with areas designated on their FIRMs as part of the Coastal Barrier Resources System will have to advise inquirers whether the property is an "undeveloped coastal barrier" or "otherwise protected area." Inquirers will also need to be told about the restrictions on Federal aid and the prohibition on the sale of flood insurance in such areas.

Activity 330, Public Outreach

The CRS credits community projects that actively reach out to people and give them information. The objective of this activity is to make people aware of the flood hazard, flood insurance, ways to prevent or reduce flood damage, and the natural and beneficial functions of floodplains. Outreach projects encourage people to look for more information and take steps to protect themselves and their property. The activity level of communities that conduct outreach projects is not dependent on any demographic variables.

Credit points for Activity 330 are based on three types of outreach projects. To receive credit, a community may do one or more of them: outreach projects to the entire community, outreach projects to floodplain residents only, or smaller additional outreach projects. Once a project meets specific criteria for CRS recognition, its credit points are based on three factors: the topics that are covered, the frequency with which the outreach is conducted, and the percentage of people reached.

The outreach activity was reviewed for the CRS evaluation by four methods: the Local Officials Survey, a literature review and telephone survey, the Floodplain Residents Awareness Survey, and a focus group of outreach experts.

Local Officials Survey—Overall, the local officials indicated that written information, public presentations, and news releases or articles were the most effective vehicles for disseminating information to increase citizen awareness. Residents agreed that the most effective methods for providing flood hazard information include the mass media (television and newspapers), receiving a flyer or brochure in the mail, and using the community newsletter.

The significance of written information and news releases or articles in increasing citizen awareness was dependent on community location and whether the community is coastal or inland. Written information did not make as much of an impact in Florida as it did in the central and western States. This may be because Florida's location "speaks for itself" so dissemination of written information is not necessary. This theory may also explain why written information and news releases or articles were not as significant in increasing citizen awareness about flood hazards in coastal communities as in inland ones.

After reviewing the comments from CRS local officials and conducting a literature review on outreach, it was decided to survey the awareness levels of residents in floodplains in both CRS and non-CRS communities. In addition, a focus group was conducted to gather expert opinion on the activity. The results of these efforts are summarized below.

Outreach Literature Review and Telephone Interviews—A literature review was conducted to begin the process of obtaining expert opinion and research findings on what types of outreach methods are most effective for conveying a flood loss mitigation message.[7] Various approaches were taken to gather the information. Overall findings indicated that there were no clear-cut solutions to launching a successful public outreach campaign. However, in general, effective campaigns result when designers take into account some key points. Public outreach campaigns should:

- Be developed using simple, easily understood language,
- Be repetitious (the public's belief system is shaped by hearing the message frequently),
- Disclose factual information,
- Be credible,
- Be specifically designed for the target audience,
- Be positive,
- Show that the audience has control over changing its behavior,
- Be presented in a meaningful way, and
- Be part of a planned campaign that is monitored for effectiveness.

This information helped shape the discussion for evaluating Activity 330, Outreach Projects, and was especially instrumental in helping to verify the results from the Public Outreach focus groups, which made remarkably similar recommendations.

Floodplain Residents Awareness Survey—More than 500 floodplain residents from both CRS communities and non-CRS communities were interviewed by telephone to assess whether CRS-credited outreach activities are raising their awareness of the flood hazard and motivating them to take action to protect themselves and their property from floods. The study looked at five communities that receive maximum CRS credit for this activity, and five non-CRS communities that were demographically similar and had flood hazards and flooding histories similar to those of the CRS communities.[8]

At least 50 people were contacted in each community, selected randomly from lists of residents who live within a floodplain. The following questions were asked:

- Is your home in a flood hazard area?
- How did you learn you were in the floodplain?
- Does your community provide flood information?
- Are you aware of ways to protect your property?
- How did you learn about ways to protect your property from flooding?
- Which three methods would be most effective in providing you with flood damage information?
- What actions have you taken to protect your house from flood damage?
- Are you aware that your community participates in a flood program that provides insurance discounts to policyholders on outreach and flood loss reduction efforts?
- Would you be interested in learning more about this program?

Results of the Residents Awareness Survey—The overall findings indicate that residents are aware of flood hazards and are taking action to protect their property from flood damage. Furthermore, results show that the people in the CRS communities are more aware of these hazards and are therefore taking proactive steps.

- Residents from CRS communities are more aware than residents from non-CRS communities that their homes are located in a Special Flood Hazard Area.
- 76% of the CRS residents who knew they were in a floodplain learned it through community efforts (local or community official, neighbors, or outreach effort); only 24% of the non-CRS residents learned through community efforts.
- 64% of the CRS residents are aware that their community provides flood information; 33% of the non-CRS residents are aware that their community provides flood information.
- 66% of the CRS residents are aware of ways to protect their property, while only 49% of the non-CRS residents are aware of such options.
- Outreach was the most frequently cited response to how CRS and non-CRS residents learned about ways to protect their property from flooding.
- The three most effective outreach efforts identified were media/television/newspaper; flyer/brochure; and a community newsletter.
- 63% of the CRS residents interviewed have taken measures to protect their property from flood damage.

Focus Group on Public Outreach—A "focus group" of public information experts was convened in October 1997.[9] The public outreach experts concluded that:

- A public information program can build a “cultural change” over time whereby people become aware of the hazards to which they are exposed and how they can protect themselves.
- There is no national optimum or model program. Each community needs to develop its own program based on local conditions and community goals.

- Messages need to be repeated and presented through as many different sources as possible. A program run solely by the local government and directed at residents will not be as effective as one that works cooperatively with different agencies and organizations, such as the schools, insurance agents, and building contractors.
- Research about outreach efforts indicates that it takes time for people to change. Selling a product is very different from providing information and changing behavior.
- Communities will be more effective if they develop an overall public information strategy that reviews the hazard problem, determines how best to reach the target audiences, coordinates with other information programs, and annually monitors and evaluates the effort.

Changes to Activity 330—The maximum points went from 250 to a proposed maximum of 290 points. The three current elements, Outreach Projects to the Community (OPC), Outreach Projects to Floodplain Properties (OPF), and Additional Outreach Projects (OPA), will keep their current maximum points.

Currently all ten topics receive 6 points under OPC and 13 points under OPF. In 1999, five topics will be worth more points and the other five will be worth less (see below). This will encourage communities that implement shorter projects to focus on the issues most important to the NFIP.

Topic covered in the project	OPC	OPF
Local flood hazard	8	17
Flood safety	8	17
Flood insurance	8	17
Property protection measures	8	17
Natural floodplain functions	8	17
Local flood hazard map	4	9
Flood warning system	4	9
Development permit requirements	4	9
Substantial improvement requirements	4	9
Drainage system maintenance	4	9
	60	130

The formula that adjusted points based on how frequently the project was implemented will be dropped. OPC and OPF projects must be implemented annually. Likewise, the impact adjustment for OPC and OPF will be dropped. To receive the credit for these elements in the future, the community must show that the project is sent to at least 90% of the target audience.

As a result of the research conducted as part of the CRS evaluation, the 1999 *CRS Coordinator's Manual* will offer an alternative to the current OPA, which has a maximum of 60 points. A community will be able to receive 100 points if it prepares, adopts, implements, and monitors a public information program strategy and implements outreach projects pursuant to that strategy (OPS), regardless of the number of projects or topics covered. It is assumed that a properly prepared strategy will produce the best outreach projects for that community. A community will be able to apply for either OPA or OPS, but not both. The credit for the new OPS is worth 40 points more than OPA, to encourage communities to use this alternative. Thus, the total credit for Activity 330 will increase from 250 to 290.

To help communities prepare their outreach strategy, the CRS will produce a new “model program” paper to replace the current one. It will have guidance on how to prepare the strategy document and evaluate projects, along with examples.

Activity 340, Flood Hazard Disclosure

Credit for Activity 340, Flood Hazard Disclosure, is provided only if the flood hazard is disclosed to people when they first look at properties to buy or rent. The disclosure information must be volunteered or appear on a document that people see *before* they have committed to buying or renting a property, such as a Multiple Listing Service printout or the offer-to-purchase contract.

Evaluation—This activity was assessed through the Local Officials Survey and the Residents Awareness Survey. A separate research effort was undertaken to gather hazard disclosure practices, but not enough literature was found to prove useful. The surveys of residents found that CRS residents were 10 times more likely to learn of the flood hazard from real estate agents than were residents in non-CRS communities.

Changes to 1999 CRS—This activity has always been difficult to verify with local real estate agents. It was decided to require the community to include copies of disclosure notices from at least five real estate agencies that serve the community. If there are fewer than five agencies, then one notice from each agency must be submitted. A community will be able to receive 20 points if disclosure by real estate agents is required by a state law. There is no change in maximum credit points.

Activity 350, Flood Protection Library

Credit points are provided under this activity if the local public library contains flood-related documents. The documents must be entered into the library's card catalog or similar system that allows patrons to find publications related to flooding and flood protection.

Evaluation—The Local Officials Survey and Residents Awareness Survey included questions about the use of the library.

Changes in 1999—The evaluation validated this activity as currently designed and therefore no changes are planned for 1999.

Activity 360, Flood Protection Assistance

The objective of this activity is to provide interested property owners with general information that responds to their individual flood protection needs. This activity must be publicized annually in a newsletter, telephone book, or other outreach project that reaches everyone in the community or everyone in the floodplain. The assistance can be provided by a combination of offices to secure a range of expertise. This activity does not provide credit for normal floodplain ordinance or building department functions.

Evaluation—The Local Officials' Survey and Resident Awareness Surveys included questions about this activity.

Changes in 1999—The evaluation validated this activity, so no changes are planned for 1999.

Activity 410, Additional Flood Data

Credit is provided for developing floodplain maps and flood data in areas where FEMA did not provide such data, and regulating these areas accordingly. "Flood data" include base flood elevations and delineations of floodways and coastal velocity zones (V Zones). This activity

credits (1) studies conducted outside of the SFHA, (2) studies conducted in the SFHA where base flood elevations were not shown on the FIRM, (3) restudying an area shown on the FIRM where the new study produced higher base flood elevations, and (4) studies that were conducted to higher standards than the normal FEMA mapping criteria.

There have not been many applications for this activity because it is complicated, the impact adjustment map is difficult to prepare, and most communities do not receive a lot of points. Most of the applicants used the default impact adjustment value to minimize their application effort.

Evaluation—FEMA asked the Association of State Floodplain Managers (ASFPM) for suggestions on this activity and they responded to a set of questions.[10] Based on these recommendations and other experience, the following extensive changes were made.

1999 Changes—The points increased from the current maximum of 360 to a new maximum of 1,200. To help alleviate the complexity of this activity, it was decided that additional assistance would be provided to communities during the verification visit. In this way, a community will receive the proper credit regardless of whether it applied for it "correctly."

411.a Regulatory flood elevations (RFE) will be revised to increase the maximum credit points from 50 to 250. More credit will be provided for obtaining elevations in B, C, or X Zones, for submitting the new data to FEMA with a request for a map revision, and for data produced as part of a comprehensive watershed study.

411.b Additional data standards (ADS) will be revised to increase the maximum credit from 75 to 165 points. Credit will be increased for studies that are based on future-conditions hydrology, that include a floodway or a coastal velocity zone, or that were reviewed and accepted by an approved state review process.

411.c More restrictive floodway standard (FWS). The impact of a “no rise” floodway is similar to that of open space preservation. The scores for FWS will be increased by a factor of 10, with the maximum increasing from 20 to 200.

411.d Non-FEMA share (NFS). If a study was fully funded by an agency or developer other than FEMA, then the credit is reflected in the points for RFE. A FEMA-funded Flood Insurance Study or restudy is not eligible for RFE credit, although it can be credited under NFS. The maximum credit for NFS will increase from 50 to 200.

If a community can document what percentage of the total cost of the Flood Insurance Study or restudy it paid for, the credit for NFS will be that percentage multiplied by the credit the study would have received under regulatory flood elevation (RFE), had it not been financed by FEMA. A default value is available for communities that cannot document their proportion of the cost of the study.

Activity 420, Open Space Preservation

Activity 420, Open Space Preservation, credits preserving vacant land in the floodplain as open space, i.e., as areas where there will be no buildings and no filling. The area must be preserved as open space either through public ownership or by development regulations that prohibit buildings and filling. The areas can be parks, private preserves, playing fields, golf courses, or other uses that the owner documents will remain open.

Evaluation—This activity was one of several "control points" that received a technical review relating the activity to existing actuarial data and models. The CRS credits are designed to adjust insurance rates for those that are insured. Therefore, the influence of open space modeled for CRS credit is its influence on preventing flood elevations from increasing and

thereby increasing damage to insured buildings. The initial basis for this analysis was a 1978 paper by James Goddard, in which he concluded that complete blockage of the flood fringe would result in a .7-foot rise in flood elevations.[11]. FEMA had the Goddard study reexamined and it was recommended that the ultimate rise in flood elevations for this CRS purpose should be .9 foot.[12] The idea underlying this control point model is that the amount of rise in flood elevation that is prevented can be based on the percentage of the flood fringe kept open and that the avoidance of increased heights keeps damage from increasing. The Weighting Review participants discussed how much of the flood fringe could typically be developed at any point in time. The group concluded that although complete blockage could result in a .9 foot increase, experience shows that blockage is invariably less than complete and therefore, as a practical matter, the rise in flood heights being avoided would be significantly less than .9 foot.

1999 Changes—The maximum points of 550 were increased to 900, recognizing the effectiveness of this activity. Instead of increasing the default credit for having 5 acres in open space, communities will be helped to calculate their true scores during the verification visit.

Activity 430, Higher Regulatory Standards

This activity provides credit for regulations that require new development to be protected by one or more standards stricter than the NFIP minimum requirements. These standards include freeboard, foundation protection, more stringent building improvement rules, protection of critical facilities, preservation of floodplain storage, protecting the natural and beneficial functions of floodplains, limiting building enclosures below the flood level, mapping and regulating areas subject to special hazards, and low density zoning. Communities may also submit other measures that they deem successful.

Evaluation—The evaluation of this activity involved a group of ASFPM technical reviewers who were given a series of questions on this activity for comment. Their responses, along with the general experience gained in implementing this activity, contributed to the decisions regarding credit changes. Two elements of this activity, freeboard and lower substantial improvement threshold, were also modeled as control point activities for the Weighting Review.

Freeboard affords additional protection, beyond that already reflected in the rate tables, by reducing the influence of factors that can affect flood damage, but that are not quantified. Three feet of freeboard, in the zones where most policies are located, is enough to place a building at minimal current flood risk and high enough to retain low flood risk even if flood heights increase. The control point model estimated that expected annual damage for post-FIRM buildings is reduced by an average of 30% if the effects of a .5-foot increase in flood height are avoided. Three feet of freeboard should accomplish this. Along with consideration for the portion of post-FIRM buildings that would fall under this requirement, this estimate led to the decisions regarding point changes.

Lower substantial improvement thresholds bring older buildings up to post-FIRM standards sooner than otherwise might occur. From an insurance premium standpoint, the benefits of bringing a building into compliance with post-FIRM standards is already built into the NFIP rating system. However, the additional value to the NFIP of having these structures brought up to code is the elimination of the subsidy, or the unfunded portion of expected annual damage that had not been collected in premiums. Control point calculations taking this aspect into account reaffirmed current point levels. However, the Weighting Review participants expressed reservations about how effectively these lower thresholds can be enforced under the stress of a post-disaster situation.

***1999 Changes*—**The maximum points of 905 have been increased to 1,705, based on a reassessment of the benefits to the NFIP of three elements: freeboard, protection of critical facilities, and enclosure limits. All three will have significantly increased scores. A new element that recognizes state mandates will be added.

431.a Freeboard (FRB). The formula will be changed to FRB = 100 x FB, where FB is the required freeboard, in feet. This will increase the maximum credit points from 130 to 300. The credit for one foot of freeboard will increase from 25 to 100 points.

431.c Cumulative substantial improvement rules (CSI) and 431.d Lower substantial improvement threshold (LSI). Both CSI and LSI will be revised to allow half credit if the regulations relate to either improvements/additions/modifications or repairs. Verification procedures are being refined because of feedback that enforcement of CSI and LSI is problematic in post-disaster situations. There will be no change in the maximum credit points.

431.e Protection of critical facilities (PCF). The points will be increased from 20/10 to 100/50. The credit may be pro-rated if the ordinance does not regulate all of the community's critical facilities. An impact adjustment will reflect the scores for those regulations that do not cover the entire SFHA (e.g., no critical facilities in the floodway).

431.g Natural and beneficial functions regulations (NBR). Fifteen additional points will be provided for regulations enacted pursuant to a community Habitat Conservation Plan that is approved by the U.S. Fish and Wildlife Service. This will increase the maximum points for NBR to 40.The plan can also serve as documentation for NB credit under Activity 420.

431.h Enclosure limits (ENL). The conversion of enclosed areas into habitable spaces converts an otherwise compliant building into a potential for flood damage and threatens human safety. This requirement can have a much greater impact on preventing future flood losses than originally envisioned. The current approach of providing 50 points for prohibiting any enclosures below the lowest elevated floor will be changed to:

> ENL = 300, if regulations prohibit *any* building enclosures, including breakaway walls, below the base flood elevation, or
>
> ENL = 100, if regulations prohibit enclosures of areas greater than 300 square feet, including breakaway walls, below the base flood elevation.
>
> ENL = 50, if regulations require owners of new buildings to sign a non-conversion agreement.

The last two items can be added together for 150 points if the community does not prohibit all enclosures. Under a non-conversion agreement, the owner promises not to improve, finish or otherwise convert the enclosed area below the lowest floor. It also grants the community the right to inspect the enclosed area.

431.j Low density zoning (LZ). The points will be increased from a maximum of 340 points to 600. This follows the increased credit for preserving floodplain open space under Activity 420.

431.l State mandated regulatory standard (SMS). The CRTF is proposing this new element, which will have a maximum credit of 25 points. The points will be equal to 10% of the equivalent CRS credit for the regulatory standard.

Activity 440, Flood Data Maintenance

Credit is provided under Activity 440, Flood Data Maintenance, for keeping the community's floodplain maps and elevation reference data current, useful, and accurate in order to improve local regulations, planning, disclosures, and property appraisals. The map or reference system must be used regularly by community regulatory staff and updated annually. Specifically, credit is available for putting NFIP map delineations on a digitized mapping system or other method that allows for quick revision and reprinting of a floodplain map.

Evaluation—The evaluation of this activity involved a group of ASFPM technical reviewers who were given a series of questions on this activity. Their responses, along with general experience in implementing this activity, produced several changes.[13]

1999 Changes—The 1996 maximum points of 130 were increased to 211. Additional changes are as follows:

441.a Additional map data (AMD). The three separate systems under AMD will be combined into one element so there will be no duplicate scoring for a GIS, digitized parcel data, or overlay map, or for using different parts of the same system in different locations. The impact adjustment will ensure that there is only credit for one system for an area.

The minimum score will be 32 points for showing parcels and floodplain boundaries (a digitized parcel system would show whether a parcel is in the floodplain). These two items will have to be shown to receive any credit for this element.

The scoring will be the same as for digitized mapping system (DMS). New credit points will be added, bringing the maximum score up to 120. These will include points for including updated floodplain data in the tax assessor's data base. The CRS wants to encourage users of this data base, which include tax assessors and appraisers, to be aware of the flood hazard. Additional new points will be provided for including overlays or layers for previous FIRMs. The CRS wants to encourage keeping old FIRMs to help track substantial improvement requirements and eligibility for grandfathered flood insurance premiums. Old maps are hard to obtain, so keeping them on record will provide a valuable service to residents.

441.b Elevation reference mark maintenance (ERM). Credit will be revised by providing more points for a more dependable and more accessible system of bench marks. The community must have a master list of the reference marks and clear descriptions of their locations in a document that is publicized as available for surveyors and other interested parties.

Twenty credit points are provided (the same as now) if the community's only reference marks are of a type similar to those shown on the FIRM. More points will be provided (with the maximum increasing from 20 to 30) if the bench marks are permanent monuments, the community has at least three bench marks listed in the National Geodetic Reference System, or every developable site in the SFHA is within one-half mile of a permanent monument. Up to 90 points will be provided if the community checks the location and elevation of the reference marks, based on the type of bench marks maintained.

Activity 450, Stormwater Management

This activity credits regulating new development in the watershed (not just the floodplain) to minimize the adverse impacts of stormwater runoff on downstream flooding and water quality. The first element is for regulations that ensure that the peak flow of stormwater runoff from a new development in the watershed (not just the floodplain) will be no greater than the runoff from the site before it was developed.

The second element credits adoption of a master plan(s) that sets stormwater regulatory criteria for new development in the watershed(s). Credit is also available for regulations requiring that all new buildings *outside* the floodplain either (1) have the lowest floor or lowest opening above the crown of the nearest street or above highest grade adjacent to the building, or (2) site plans that ensure that new buildings are protected from local drainage problems. Other credits are available for regulating soil loss from construction and requiring new subdivisions to include in their stormwater management facility design appropriate "best management practices" that will improve the quality of surface water.

Evaluation—Activity 450 was initially reviewed by a panel of stormwater management specialists selected by the ASFPM. As it turned out, this review concentrated primarily on stormwater management regulation (SMR) and stormwater master planning (SMP). These reviewers did not advocate changes to the other elements of this activity. As a result of this initial review, the CRTF agreed to increase the credit for SMP from 50 to 225 points, recognizing that SMP is as important as SMR. The CRTF also increased the relative importance of maintenance of stormwater management facilities. Proposed revisions to this activity were drafted based on these CRTF decisions and made available to the larger floodplain management community via the Internet. The original panel of ASFPM reviewers was also asked to comment. After comments were received, the revised paper was discussed extensively by the ASFPM Stormwater Management Committee during the ASFPM's 1998 annual conference.[14]

1999 Changes—The 1996 maximum points of 405 will increase to a proposed maximum 580 points. Other changes include:

451.a Stormwater management regulations (SMR). This element's score is based on the scores for three sub-elements, SZ, DS, and PUB. Several of the ASFPM reviewers thought that there should be no SMR credit without a maintenance program run by or supervised by the community. The CRTF moderated this position by suggesting that the credit for maintenance be increased relative to the other components of this element.

451.a.2 Design storms (DS). The minimum design storm will be increased from the 2-year storm to a 10-year storm. Facilities designed for storms smaller than the 10-year are generally built for water quality purposes and do not provide water quantity benefits.

451.a.3 Public maintenance (PUB). The evaluation concluded that effective stormwater management is dependent on adequate maintenance of facilities. Rather than require all credit for SMR be dependent on receiving PUB credit, it is proposed that the credit for PUB be increased so that it accounts for half of the total credit for SMR. This means that the relative credit for size of development (SZ) and design storm (DS) will be reduced relative to PUB.

Size of development (SZ):	40	decreased to	25
Design storms (DS):	155	decreased to	90
Public maintenance (PUB):	30	increased to	110
SMR	225		225

Several comments to the Task Force noted that communities not receiving PUB credit will lose up to 80 points. It should be noted that a community can receive PUB credit in one of three ways:

(1) All new stormwater management facilities (including basins built by private developers) will be deeded to the community for it to maintain.

(2) The community will inspect new facilities annually and order maintenance when needed. If the owner fails to perform the maintenance, the community will do the job and bill the owner.

(3) The owner can perform the maintenance and each year an engineer will certify to the community that it has been done.

A community that does not currently receive PUB credit can pass an ordinance that includes one of these approaches. The ordinance will only have to address facilities built after the date of its passage to receive PUB credit. This maintenance program should be coordinated with or be a part of the drainage system maintenance program credited by Activity 540.

451.b Stormwater management master plan (SMP). The ASFPM reviewers and the CRTF agreed that credit for SMP should be significantly increased. This element will increase from 25 to 225 points. A stormwater master plan is the result of a hydrologic and hydraulic study of the watershed, usually under both existing conditions and future development conditions with different management scenarios. It usually includes recommendations for a set of management controls and/or construction projects to solve existing flooding problems and to prevent the development of new problems.

Eighty points are provided if the community develops and implements surface water runoff regulations through a stormwater master plan that ensures that flood damage within and downstream from the watershed is not increased by future development. The plan must

- Have been adopted in the community's regulatory program,
- Require that the peak flows of runoff from future development will not increase beyond the present peak flows, and
- Manage all storms up to and including the 25-year storm (no credit is provided for SMP for management of storms smaller than the 25-year storm).

The following additional points are being added based on comments from the reviewers and the discussion held at the ASFPM conference:

- 40 points if the plan provides management of future peak flows *and volumes* so that they do not increase over present values. If the community can demonstrate that its stormwater management plan prevents damaging increases in peak flows at all points within its watershed(s) and downstream, it will receive this credit.
- 25 points if the plan manages the runoff from all storms up to and including the 100-year event.
- 25 points if the plan manages the runoff from all storms up to and including the 5-day event. If a community can demonstrate that an event shorter than five days is the locally appropriate “worst-case” runoff event for stormwater management, it may receive the credit if it uses that event for its regulatory standard.
- 15 points if the plan identifies existing wetlands or other natural open space areas to be preserved from development to provide natural attenuation, retention, or detention of runoff.
- 10 points if the plan prohibits development, alteration, or modification of existing natural channels.
- 10 points if the plan requires that channel improvement projects use natural or “soft” approaches rather than gabions, riprap, concrete, or other “hard” techniques.

- 20 points if the plan was prepared in coordination with or as a part of the community's floodplain management plan credited under Activity 510.

451.c State review of stormwater management plans (SRSM). Only eight communities in two states receive this credit, which modified the credit for SMP. It is proposed that this element be dropped. The communities receiving SRSM have good stormwater plans and can be expected to receive more total credit with the change in the SMP score.

Activity 510, Floodplain Management Planning

The CRS provides credit for preparing, adopting, implementing, evaluating, and updating a comprehensive floodplain management plan. The CRS does not specify what activities a plan must recommend; rather, it credits plans that have been prepared according to a standard planning process. In order to maintain the credit for this activity, the community must annually evaluate its progress toward implementing the plan and submit an evaluation report with its annual CRS recertification.

Evaluation—The Local Officials Survey included questions on this activity, but raised no concerns—only support. Accordingly, and because this activity was dramatically revised in 1996, there was no need to focus further attention on it. In fact, the CRS planning process has been cited as a model planning guide for local communities. Acceptable CRS plans meet the planning requirements for FEMA's Flood Mitigation Assistance (FMA) Program, and for the U.S. Army Corps of Engineers' local floodplain projects.

1999 Changes—There has been an increase of 20 points, from 210 to 230, to add the following:

Five points will be provided if the community's problem assessment included a review of all the properties that have received flood insurance claims (not just the repetitive loss properties).

An additional 15 points will be provided if the community's recommended natural resource protection activities include a community-wide Habitat Conservation Plan prepared pursuant to guidelines for the Endangered Species Act. The credit is subject to acceptance of the plan by the U.S. Fish and Wildlife Service or the National Marine Fisheries Service.

Finally, due to the high acceptance of this activity and its use as a model, more emphasis will be placed on encouraging the existing all-hazards planning approach.

Activity 520, Acquisition and Relocation

Credit is provided for acquiring, relocating, or otherwise clearing buildings out of the floodplain. This activity credits any approach as long as an insurable building is removed from the path of flooding. Credit is not provided for structural control products that result in revisions to floodplain boundaries. Credit is only provided if the community receives credit for vacant land under Activity 420, Open Space Preservation.

Evaluation—This activity was another "control point" that received a technical review. Pre-FIRM policyholders are eligible to purchase insurance at less than full-risk premiums, thereby creating a premium shortfall. For the Weighting Review, an analysis relating the effects of this activity in reducing the shortfall in premium for pre-FIRM policies (by removing pre-FIRM buildings) to CRS credits was presented. Discussions focused on proper balance among activities, how incentives should be provided in the CRS to undertake activities, and how the size of a community affects its ability to gain credit for this activity. Also considered was how the

premium shortfall would likely decrease over time due to other premium and coverage changes. Credits for Activity 520 are prorated based on the portion of SFHA buildings removed, which can adversely affect large communities. The Weighting Review participants recommended that the credit points earned for an initial number of buildings be greater than those subsequently earned in order to address this. It was also recommended that additional credit be provided for repetitive loss buildings.

***1999 Changes*—**Based on the control point review and discussions among the Weighting Review participants, the maximum value of 1,600 points will be doubled to 3,200 to better reflect the impact of this activity on the NFIP and flood loss reduction.

Activity 530, Retrofitting

Credit is provided for buildings that have been floodproofed, elevated or otherwise modified to protect them from flood damage. The credit is based on the number of insurable buildings in the regulatory floodplain that have been retrofitted since the date of the community's original FIRM.

***Evaluation*—**This activity was another "control point" that received a technical review relating the activity to existing actuarial data and models. The Weighting Review discussions focused on not only the estimated effects of retrofitting (the model looked at the effects of a berm), but also on the credits for this activity in relationship to relocation and acquisition. It was determined that credits for retrofitting should be kept lower than full removal of a structure from the floodplain.

***1999 Changes*—**The 1996 maximum points will increase from 1,400 to a maximum of 2,800. Double credit will be also be provided for retrofitting buildings on the FEMA repetitive loss list. The approach to the default impact adjustment will not change, but the points for retrofitting at least five buildings will increase from 14 to 28.

The CRS is considering an optional form that communities could use to review each retrofitted building. This will simplify the documentation requirements.

Activity 540, Drainage System Maintenance

Credit is provided under Activity 540, Drainage System Maintenance, for keeping the channels and retention basins of a community's drainage system clear of debris in order to maintain the system's flood-carrying and storage capacity. A community receives credit for inspecting its drainage system, removing debris, and correcting drainage problem sites.

***Evaluation*—**In March 1997, a focus group of drainage system maintenance experts was convened in Denver, Colorado.[15] Participants believed that the overall effectiveness of the current procedures and crediting practices are satisfactory. However, they also made numerous recommendations for refinement of the program to better reflect the effectiveness of a local program rather than a national standard. The following is an overview of the group's concerns:

- The most common theme of the meeting was county or community budgets and the differences between small towns and larger, more affluent areas.
- The following procedures and criteria should be used to define drainage maintenance systems:
  - Drainage systems must be maintained to minimize flood damage to insurable buildings from smaller, more frequent storms.
  - Proactive inspections (more than one per year *or* after each storm) must be conducted on a regular basis.

- Complaints must be promptly addressed.
- Problem sites should be identified and treated on an individual basis.
- Problem sites should be eliminated.
- Maintenance procedures should be environmentally responsible.
- Regions, states, and neighboring areas should coordinate efforts.

Credit Criteria—The experts recommended the following credit criteria to differentiate good programs from better ones:

- There must be a proactive inspection at least once a year.
- There must be an inspection after each major storm.
- The program must respond to complaints.
- Action must be taken within a reasonable period of time after a maintenance need is identified.

The focus group identified the following situations in which more points should be provided:

- The program identifies specific problem sites that are maintained differently or more frequently than other parts of the drainage system.
- The community has a program to eliminate problem sites (e.g., a capital improvement plan).
- The maintenance procedures are "environmentally responsible."
- Programs are coordinated on a regional basis.
- A peer review by maintenance experts from area communities can help evaluate the effectiveness of a community's program. Perhaps area- or State-specific credit criteria could be developed with the assistance of local experts.

Program Development—

- Each community must define its own "drainage system." The definition should address the impact of the system if not maintained.
- Each community should allocate the level of service for these systems . This will enable communities to inventory their systems and define their goals.
- Communities must take a proactive approach to inspecting and maintaining their drainage systems.
- Communities should be encouraged to develop a program to improve problems or eliminate them.

Written Procedures—

- Written procedures and a record of inspections are strongly recommended.
- Written procedures indicate a level of intent.
- Having written procedures enables communities to tie the procedures to specific goals (performance objectives).
- A checklist for verification should not be used instead of a formal verification procedure.

- Keeping documented procedures and records facilitates the transfer of knowledge through the years of system maintenance.
- The CRS needs to recognize that the average maintenance crew person does not use written procedures

An issue paper was drafted based on the experts' comments. After their review, the paper was revised and distributed to the ASFPM, the National Association of Flood and Stormwater Management Agencies, and the American Public Works Association.

1999 Changes—Although the activity was reformatted, no change was made in maximum credit points.

The definition of the drainage system subject to this activity will be:

> For the purposes of this activity, a community's drainage system consists of all natural and manmade watercourses, conduits and storage basins that must be maintained in order to prevent flood damage to insurable buildings from smaller, more frequent storms. In many communities, this will include streets, roadside ditches, underground storm sewers and inlets as well as open channels and detention and retention basins.
>
> The location of flood insurance and disaster assistance claims should be considered by the community in determining the extent of the local drainage system that deserves regular maintenance. In communities with repetitive losses (Category B and C communities), the drainage system *must* cover those areas having repetitive loss properties where the cause of the losses was due to local drainage problems or smaller, more frequent storms.
>
> If the community does not inspect and maintain all parts of its drainage system because it does not have legal access to those parts on private property or for some other reason, it must use the impact adjustment to reflect the portion that it does maintain.

541.a Channel and basin debris removal (CDR). Under the current approach, the credit for CDR is 150 divided by the frequency of inspections, in years. An annual inspection receives 150 points. The majority of communities receive the maximum 300 points for inspecting twice a year. The score is based solely on frequency of inspection; there is no differentiation for the quality of the program or for correcting repetitive problem areas.

Some concerns have been raised about the current approach:

- The frequency of inspections should vary depending on local needs.
- Proactive inspections are important because they help find problems before a flood.
- Responding to complaints is important in removing problems found between inspections and in keeping citizens involved and willing to be "eyes and ears."
- Inspecting after a storm is important so problems will be removed soon after they are created.
- There is no credit for taking steps to permanently correct known drainage problems.

To rectify these problems, the credit criteria will change. The element will still have the same maximum of 300 points:

(1) 200 points will be provided if the community's drainage maintenance program includes all of the following:

   a. A proactive inspection is conducted at least once each year,
   b. An inspection is conducted after each major storm,
   c. Inspections are conducted in response to citizen's complaints, and
   d. Action is taken after a maintenance need is identified.

(2) Up to 50 additional points will be provided if the community's program identifies specific problem sites that are inspected and maintained differently or more frequently than other parts of the drainage system.

(3) Up to 50 additional points will be provided if the community has an ongoing program, such as a capital improvements plan, to eliminate or correct problem sites or to construct "low maintenance" channels or other facilities. To qualify for this credit the community must spend money on a regular basis on such improvement projects as enlarging culvert and bridge openings to eliminate bottlenecks, installing permanent hard or soft bank protection measures, installing grates to catch debris during high flows, or building new retention basins to reduce flows into existing channels.

541.b Stream dumping regulations (SDR). SDR credit is currently dependent on CDR credit and the frequency of CDR inspections. SDR will become independent of CDR credit. The SDR scoring will be revised, but the maximum credit will remain at 30. A community can earn 15 points for SDR if its regulations prohibit dumping in the community's drainage system, or 30 points if its regulations prohibit dumping in the community's drainage system and the community publicizes the regulatory requirements.

542 Impact adjustment. This section will clarify that if the community's program does not maintain the streams, ditches, basins, etc., in certain areas, then the impact adjustment measurements (aCDR) must exclude those areas. The two most common reasons for not maintaining an area are that the streams or facilities are on private property or that environmental regulations or practices prohibit removing debris. If an unmaintained stream is in an area where buildings will not be affected, such as a park or farmland, there will be no point reduction through the impact adjustment.

Activity 610, Flood Warning Program

The CRS recognizes community flood warning programs that provide timely identification of impending floods, disseminate warnings to appropriate floodplain occupants, and coordinate flood response activities. Often, with sufficient warning, a community and its floodplain occupants can take protective measures and move themselves and their property out of the way of flood waters. When a flood threat recognition system is combined with an emergency response plan that addresses the community's flood problems, flood damage can often be prevented.

Flood Warning Program points are credited under four warning system components: Flood Threat Recognition (FTR), Emergency Warning Dissemination (EWD), Other Response Efforts (ORE), and Critical Facility Planning (CFP).

Evaluation—Two focus group discussions were conducted to assess the CRS flood warning activity. Participants were from the western states and Florida, had a diversity of experience with riverine and coastal flooding, and represented the hydrologic/meteorologic, emergency management, and mitigation perspectives.[16]

Overall, the focus groups said the CRS considers the right components to measure the effectiveness of local flood warning programs. They said that the CRS should continue to grade local flood warning programs based on the elements of the flood threat recognition system, methods of warning dissemination, content of the response plan, and the level of planning and flood warning notification for critical facilities.

Focus groups said the importance of flood warning and the level of local government effort required to develop and maintain effective flood warning programs should be worth more points under CRS. They said the point distribution among the warning system components should remain the same, but the distribution of points for methods of warning under EWD should be modified to reflect the relative effectiveness of each approach.

1999 Changes—

- The credit points for outdoor voice-sound or fixed siren systems were reduced from 30 to 15 points.
- The points for using a telephone warning system were increased from 10 to 15.
- Credit was added for the use of AM radio transmitters (10 points).
- Local governments were given the flexibility to request credit for other warning methods not specifically listed in the *CRS Coordinators Manual.*

Activity 620, Levee Safety

This activity provides credit to communities protected by levees that are properly maintained and operated but are not high enough to meet the criteria for mapping base flood levees. A community may receive this credit provided that the levee is not reflected on the community's FIRM. CRS credit is only provided for levees and floodwalls built before January 1, 1991, and those that provide protection to at least the 25-year flood elevation. Communities must have a levee emergency plan that specifies what to do at various flood stages.

Evaluation—The evaluation for this activity was held in abeyance while FEMA and the U.S. Army Corps of Engineers worked to settle issues regarding recognition of levee protection levels. Also, it was given a low evaluation priority because it is relatively clear-cut, it is based on time-tested credit criteria for levee recognition, and there have been few applications for credit.

1999 Changes—There were no changes in points or significant changes in the activity .

Activity 630, Dam Safety

This activity provides credit to all communities that have a dam safety program at the State level and for which the State office responsible for the program has submitted the necessary documentation of its program to FEMA. CRS credit for this activity will be determined for each State based upon the elements of its dam safety program.

Evaluation—The evaluation for this activity was held in abeyance while the FEMA Dam Safety Office and the Association of State Dam Safety Officials review their current methodology for grading State dam safety programs.

1999 Changes—There are no changes in points or significant changes in the activity .

THE ESTIMATED EFFECT OF PROPOSED REVISIONS TO CRS CREDIT ON CRS COMMUNITIES

The CRS communities currently average 914 CRS points. The proposed revisions for 1999 would raise the average credit to 1,031 points. According to this projection, there would be fewer Class 9 communities and more communities with Class 8, 7, 6, and 5. There would be one Class 4 community.

Although the average points will have increased and the average class will have improved under the new point system, 258 communities are projected to lose credit and 46 communities are projected to lose a CRS class, including 23 that are projected to drop to class 10. This projection is only a worst-case scenario, however, because the communities that are projected to become class 10 only need an average of 37 points to remain in class 9, and most of them should be able to find that many points. Eight of the 23 communities projected to become Class 10 will lose 50 or more points; the biggest loss was 62 points.

Among the 258 communities that will lose points, the average point loss is 62 credit points. The biggest loss is 207 points. Thirty-six communities lost 100 or more points.

Size of Community

The CRTF has always been sensitive to the issue of fairness to all communities. One question has been whether the CRS favors large or small communities. For the purposes of demographic analysis, the CRS communities were divided according to population into three groups, each with about the same number of communities. The 283 “small” communities have populations less than 10,000. The 309 “medium” communities have populations between 10,000 and 49,999. The 291 “large” communities have populations of 50,000 or more.

Small communities currently average 898 CRS credit points, 2.1% lower than the average for all CRS communities. With the proposed revisions, they are projected to average 986, or 4.2% lower than the projected average for all communities. Medium communities average 853 points, or 6.7% lower than average. With the proposed revisions, they are projected to average 960 points, or 6.9% lower than the overall average. Large communities currently average 1,002 points, or 9.6% better than the average. With the proposed revisions, they are projected to average 1,150 points, or 11.5% higher than the average.

Based on the projections, small communities would fall slightly farther behind the average for all communities, while large communities would move slightly farther ahead of the average.

Growth Rate

The communities with little growth currently average 801 CRS credit points, or 87.6% of the average credit for all communities. With the proposed changes, these communities are projected to average 904 points, or 87.8% of the average for all communities. The communities with moderate growth average 917 points, or 100.3% of the average credit. With the proposed changes, these communities are projected to average 1,048 points, or 100.2% of the average for all communities. Rapidly growing communities now average 1,015 points, or 111.1% of the average credit for all communities. With the proposed changes, these communities are projected to average 1,131 points, or 109.7% of the overall average. The proposed changes cause no differences in the relative CRS credit for the three groups according to growth rate.

Coastal and Inland Communities

The 296 coastal communities average 977 CRS credit points, or 9.0% more than the average for all communities. With the proposed revisions, coastal communities are projected to average 1,072 points, or 4.0% more than the projected average for all communities. The 587 inland communities now average 869 credit points, or 3.1% less than the average for all communities. Inland communities are projected to average 1,011 points, or 1.9% lower than the average. Thus, the proposed revisions reduce the difference in the averages for the two groups.

Geographic Location

A comparison was also made of communities according to geographic location (Table 4).The country was divided into five areas for purposes of a survey of CRS officials and residents in CRS communities. One group of communities includes New England and the Atlantic seaboard south to Virginia. Communities in the State of Florida constitute another group. A third group includes the rest of the southeastern and south central United States. A fourth group covers most of the Mississippi River basin from Minnesota to Louisiana. The fifth group comprises the western and Rocky Mountain states.

Table 4. CRS Credit by survey area.

	Survey Area 1	Survey Area 2	Survey Area 3	Survey Area 4	Survey Area 5
States in the Survey Area	Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia, West Virginia	Florida	Alabama, Georgia, Kentucky, Mississippi, New Mexico, North Carolina, Oklahoma, South Carolina, Tennessee, Texas	Arkansas, Illinois, Indiana, Iowa, Kansas, Louisiana, Michigan, Minnesota, Missouri, Nebraska, Ohio, Wisconsin	Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, North Dakota, Oregon, South Dakota, Utah, Washington, Wyoming
Average CRS Credit Points	759	987	894	844	1014

The communities in all survey areas increased in credit, although Survey Area 2 (Florida) gained very little. The overall result of the proposed revisions would be to make the averages for the survey areas more equal.

In Survey Area 1 (New England and the upper Atlantic Seaboard), the communities' increased credit in Activity 420, Open Space Preservation, accounted for 94 of the 135-point increase. Activity 430, Higher Regulatory Standards, accounted for an additional 32 points.

In Survey Area 2 (Florida), the communities averaged an increase of 59 points for Activity 420, Open Space Preservation, but lost an average of 59 points under Activity 540, Drainage System Maintenance. The net gain for all activities was 12 points.

In Survey Area 3 (south-central United States and the Gulf Coast), the communities gained 132 points in Activities 410, Additional Flood Data (20 points), 420, Open Space Preservation (54 points), and 430, Higher Regulatory Standards (68 points). The net gain for communities in Survey Area 3 was 130 points.

Communities in Survey Area 4 (the Mississippi River basin) gained an average of 170 points. They gained an average of 47 points in Activity 410, Additional Flood Data, 63 points each in Activities 420, Open Space Preservation, and 430, Higher Regulatory Standards, and 23 points in Activity 520, Acquisition and Relocation.

The average gain for communities in Survey Area 5 (the Rocky Mountains and the far West) was 151 points. Their average gain was 22 points for Activity 410 (Additional Flood Data), 78 points for Activity 420, Open Space Preservation, and 61 points for Activity 430, Higher Regulatory Standards.

Communities with Significant Changes in Credit Points

Of the 883 CRS communities analyzed, 631 are projected to gain CRS credit. Of these, 122 gain at least 300 points, 29 gain at least 500 points, nine gain at least 700 points, and two communities are expected to gain over 1,000 credit points.

Of all the CRS communities, 248 are projected to lose credit. The community with the largest projected loss will be losing 145 points. Thirty-three communities are expected to lose at least 100 points, and 153 will lose 50 points or more.

Virtually all of the communities that are projected to lose a CRS class (because of their loss of points) should be able to recover enough points to retain their current class. Each of these communities will receive special assistance from CRS personnel.

CONCLUSIONS AND STRATEGY IMPLICATIONS

The mission of FEMA's Community Rating System is to encourage floodprone communities to engage in mitigation and public information activities that go beyond the minimum that is required for participation in the National Flood Insurance Program, which enables their residents to purchase flood insurance.

The survey of local officials indicates that the CRS is a catalyst for increased mitigation activity at the local level. Important strides have been made in streamlining CRS procedures and materials in ways that compromise neither the integrity of the grading system nor the justification for premium discounts. The additional goals established by the NFIP Reform Act of 1994 have been incorporated into the CRS in a manner that has been acceptable both to stakeholders of the NFIP and to those with an interest in erosion management and the natural and beneficial functions of floodplains.

One of the issues considered in the course of the CRS evaluation study has been the fairness of the point system for riverine vs. coastal communities, and for large, medium, and small communities. It was noted in the Local Officials Survey that there was no difference in perception of fairness in the scoring system between inland and coastal communities, and there

was very little difference in the scoring among small, medium, and large communities. The other evaluation efforts reaffirmed this perception of fairness and balance among different communities.

Communities that are participating in the CRS are beginning to achieve higher classes, indicating that more of the sophisticated flood loss reduction activities are being undertaken. Over the long term this will increase the benefits of the CRS and justify the added expense of these classifications in the flood insurance rating system. The CRS has become an important tool for mitigation as well as a mechanism for integrating mitigation with insurance. This is consistent not only with grading systems that have been successfully employed for many years in the insurance industry, but also with new industry initiatives for relating insurance premiums to local community efforts to reduce losses from natural hazards.

To encourage new communities to join, in addition to providing "hands-on" help from the CRS specialists, FEMA has streamlined the application process, simplified the manner of determining "points" needed for credit, and provided for two effective dates during a year (April 1 and October 1), rather than just one.

One group particularly pertinent to the CRS comprises senior community officials, i.e., mayors, councilmen, city managers, and other local influential decision makers. In the last few years FEMA has made an effort to broaden educational contacts with this group, by having a CRS booth at conferences of the American Planning Association, League of Cities, and comparable associations of people working at the local level. Targeted mailings of introductory CRS brochures have also been carried out to garner the attention of the local political leadership. FEMA intends to continue and broaden these activities in the future.

In addition, FEMA has introduced Project Impact, and other organizations are working toward the same goal of reducing losses through building disaster-resistant "sustainable" communities. FEMA utilizes the CRS activity criteria both when evaluating communities for participation in Project Impact and for evaluating the effectiveness of a designated Project Impact community.

If a community has a Floodplain Management Plan that meets CRS criteria, that plan is considered sufficient to meet the FEMA Flood Mitigation Assistance program's planning prerequisite. Also, the Corps of Engineers has noted that the guidance given to communities for complying with its newly required floodplain management plans closely follows the procedures for preparation and implementation of a Floodplain Management Plan for credit under the CRS. Thus, if a community meets the CRS criteria for a Floodplain Management Plan, it has completed most of the work necessary to obtain mitigation-related financial benefits as well.

This report has discussed in detail the technical changes to the CRS program being made as a result of the recently completed multi year evaluation of the CRS. From the point of view of an overall strategy, the most significant of those changes are the following:

- The simplification of the application, scoring, and documentation procedures was largely the product of the surveys used in the evaluation.

- There has been a change in judgment regarding the relative importance of certain activities and how best to encourage them. Substantial increases have been made in the maximum number of points available for mapping and regulating the floodplain to standards beyond the minimum requirements of the NFIP, preserving open space, and acquiring, relocating, or retrofitting floodprone properties.

- A particular emphasis has been placed on mitigating repetitive flood losses by increasing the credit for actions associated with those properties.

- To obtain a 30% or better premium discount for its citizens, a community will have to demonstrate that it has developed a comprehensive program to eliminate or minimize flood losses, and not just be undertaking a few "high-point" activities.

- Communities are being encouraged to design their own programs, subject to FEMA approval. This is one of the recommendations coming from the outreach surveys.

- Emphasis is being placed on a community having, and enforcing, a state or nationally recognized building code. This supports the emphasis on building codes that are an integral part of FEMA's Project Impact, and similar programs, and demonstrates the synergistic nature of the current emphasis on mitigation.

The CRS is proving to be a cost-beneficial classification system for the NFIP. The detailed review of CRS creditable activities has reaffirmed that experts in the field consider these efforts to be meaningful loss reduction measures. Communities are gradually moving up in classes so that there is an increasing distinction in the risk characteristics of NFIP communities. Moreover, the CRS evaluation has shown that CRS is a catalyst for communities to undertake mitigation efforts that they would not have implemented otherwise.

Recent national efforts have been implemented to encourage mitigation and to recognize those types of activities with regard to natural hazards in insurance rating systems. Besides FEMA’s Project Impact, there have been mitigation initiatives on the part of the insurance industry, most notably the Showcase Communities program and the Building Code Enforcement Grading System. The CRS of the NFIP is an important component of this trend in mitigation.

Overall and strategic issues that can be pursued through the CRS in future years include:

(1) Supporting FEMA's Project Impact, and similar mitigation programs.

(2) Encouraging officials of communities already in the CRS to engage in activities that will improve their CRS class, thereby increasing protection for the lives and property of their citizens.

(5) Encouraging the local officials of communities not in the CRS to join.

(6) Encouraging local officials to use an all-hazards planning approach.

(7) Closely monitoring the impact of the point values and other changes effective in 1999, and fine tuning as needed.

(8) Seeking opportunities after floods and hurricanes to evaluate the actual performance of CRS-creditable activities.

NOTES

1. The results of the Weighting Review held in Bethesda, Maryland, in October 1997, are summarized in a paper, "Summary of the CRS Weighting Review Session," November 1997.
2. “Community Rating System Evaluation Planning Report,” September 1994 and January 1995.
3. The responses from the survey are summarized in a paper, "Community Rating System (CRS) Local Official Survey Results," July 1996.
4. The project team prepared a report for FEMA, *Handbook for Post-Flood Evaluation of CRS Mitigation Activities*, April 1998.
5. A paper, “Control Points for the CRS Weighting Review October 27-31, 1997”, September 24, 1998.
6. "Insurance Agent Focus Group Preliminary Results---Florida, December 1996, and "Insurance Agent Focus Group Preliminary Results---California" January 1997.
7. "Community Rating System, Literature Review: Outreach Methods" October 1995.
8. "CRS Floodplain Resident Protection Survey" July 1997.
9. "Activity 330 Outreach Focus Group of Experts" October 1997.
10. These responses are summarized in a memorandum to the Evaluation Committee, entitled "ASFPM Responses on (Activities) 410/440" and dated July 6, 1997.
11. “Origin and Rationale of Criterion Used in Designating Floodways” October 1978.
12. “ Quantitative Analysis of Loss of Floodplain Storage and Conveyance” and “Quantitative Analysis on the Effects of Compensatory Storage” September 1997.
13. These responses are summarized in a memorandum to the Evaluation Committee, entitled, "ASFPM Responses on (Activities) 410/440" and dated July 6, 1997.
14. The ASFPM’s comments on Activity 450 were summarized in a memorandum entitled, "Stormwater Management for CRS Credit: A Discussion Paper," March 17, 1998.
15. "Activity 540: Drainage System Maintenance Focus Group" summarizes the comments made at that meeting, April 1997.
16. "Activity 610 Focus Group of Experts" is a paper summarizing the comments made at the December 1997 meeting.